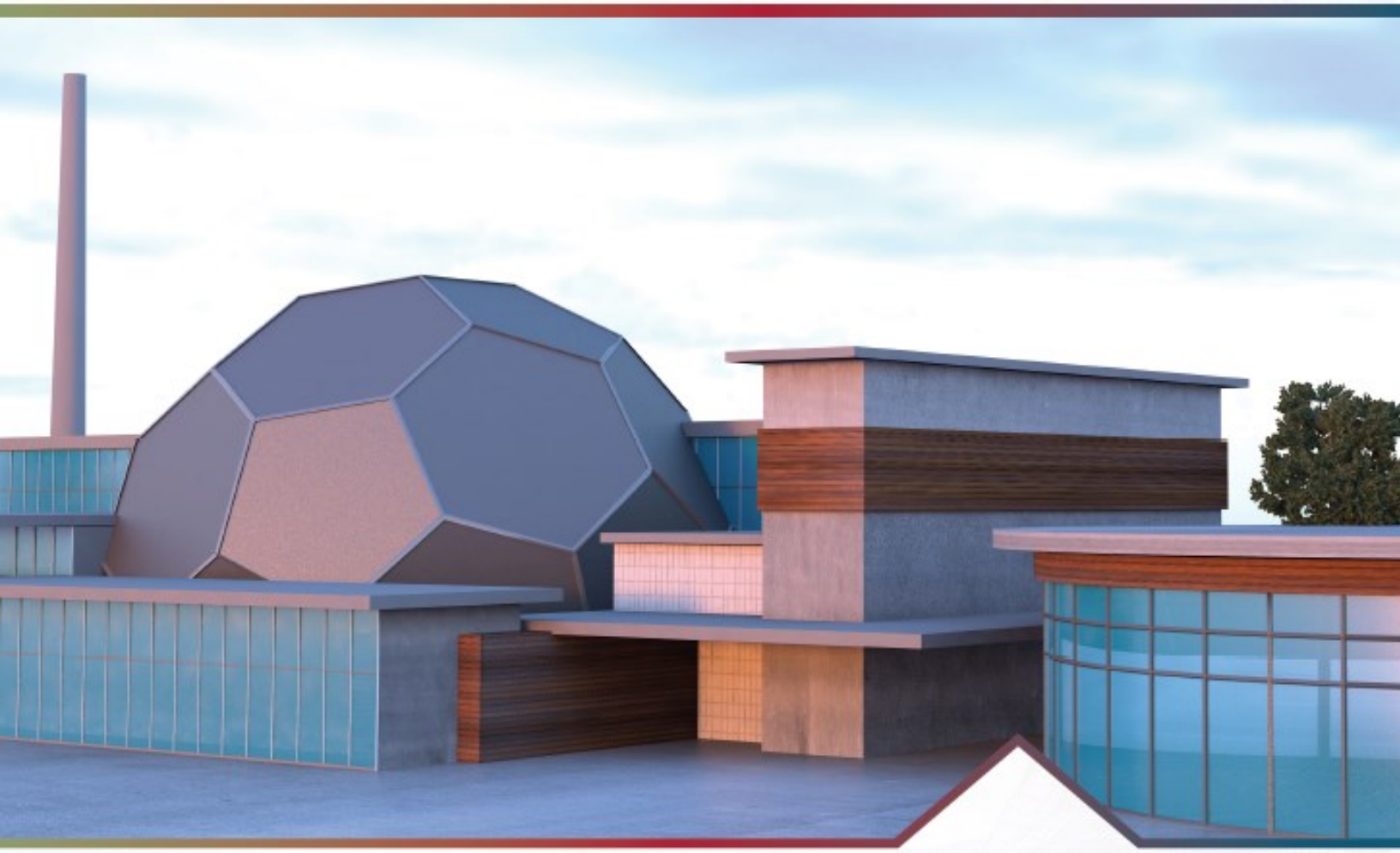
Advanced Nuclear Directory



Developers, Suppliers and National Laboratories

GAIN
Gateway for Accelerated Innovation in Nuclear

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INTRODUCTION

The Advanced Nuclear Directory offers a sample of companies engaged in the development of advanced nuclear technologies and should not be considered a comprehensive list of this industry. All companies featured have participated on a voluntary basis and are responsible for the information provided. Inclusion of a company does not indicate endorsement by any of the directory's sponsors.

ACKNOWLEDGMENT

The Advanced Nuclear Directory was created in partnership between GAIN, Third Way, and the United States Nuclear Infrastructure Council (USNIC).

*GAIN reserves the right to edit content for publishing purposes.

GATEWAY FOR ACCELERATED INNOVATION IN NUCLEAR

GAIN Gateway for Accelerated Innovation in Nuclear

The mission of the GAIN initiative is to provide the nuclear energy industry with access to the technical, regulatory, and financial support necessary to move advanced nuclear technologies toward commercialization, while ensuring the continued reliable and economic operation of the existing nuclear reactor fleet. GAIN offers a single point of access to the broad range of capabilities across the Department of Energy (DOE) national laboratory complex. DOE has invested billions of dollars to build and maintain its nuclear research expertise and infrastructure. This vast capability is being leveraged via GAIN to support commercialization of new advanced nuclear technologies.

Location: Idaho Falls, ID
Founded: 2015
Director: Christine King
Federal Engagement: DOE-NE, NRC, NSUF, NEUP, LWRS, NEAMS, ART
Preferred Point of Contact: Christine King / christine.king@inl.gov / 650-283-4235

gain.inl.gov

FAST REACTORS INFO SHEET

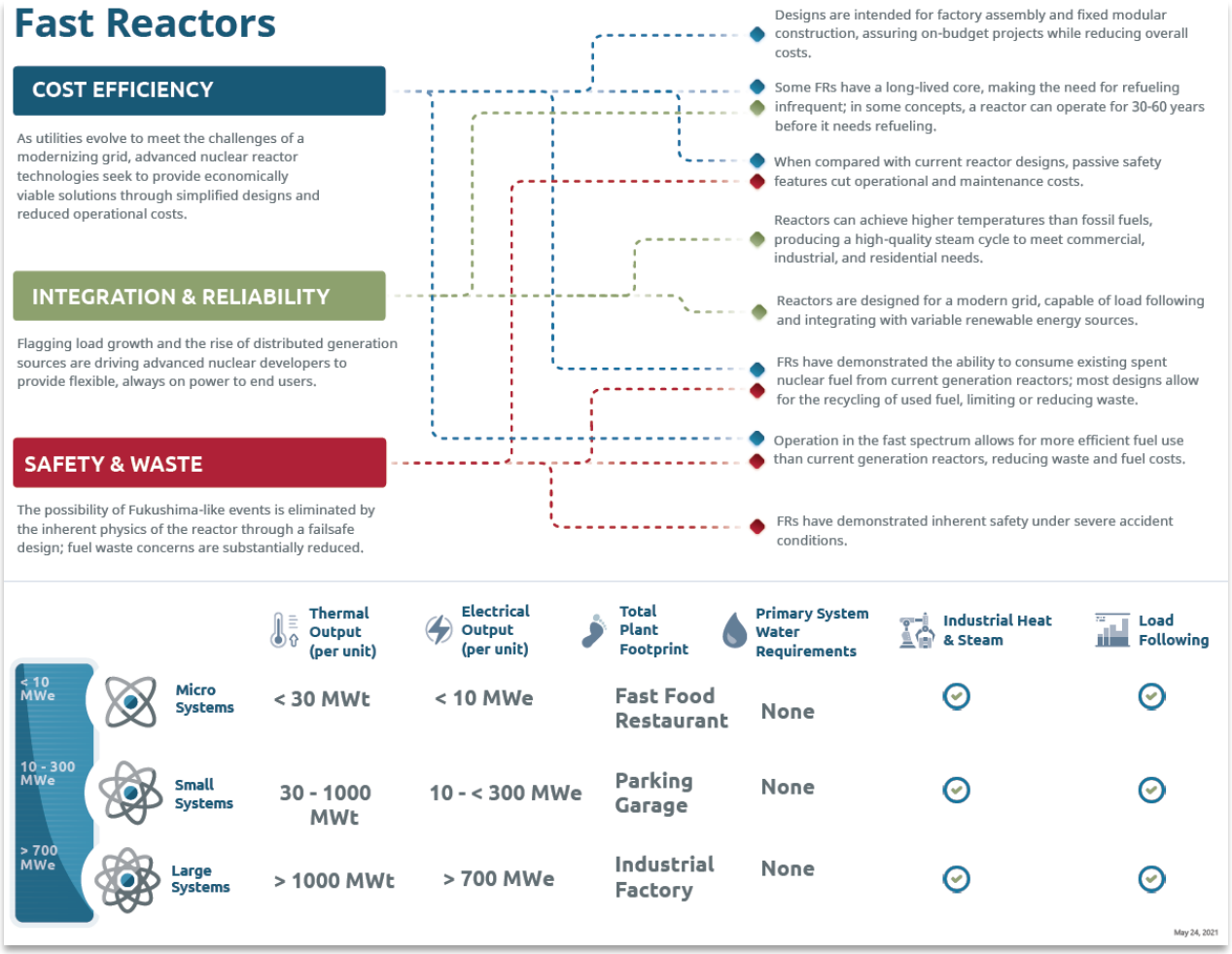
INTRODUCTION

DOE-NE has established the Gateway for Accelerated Innovation in Nuclear (GAIN) to provide the nuclear community with access to the technical regulatory and financial support necessary to move innovative nuclear energy technologies toward commercialization while ensuring the continued safe reliable, and economic operation of the existing nuclear fleet.

Developing safe, reliable sources of carbon-free energy will be the next decade's greatest challenge for US power producers. Several US-based companies are developing Fast Reactors (FRs), a type of advanced nuclear reactor to help meet that energy challenge.

Without a moderator nuclear reactions occur at high energies, producing more efficient fission reactions. Developers of this reactor type offer increased safety, reduced proliferation risk, improved management of nuclear waste, and industrial applications, all at a lower cost than traditional reactors. In some designs the reactor can recycle waste from other reactors, or produce additional fuel.

Four types of FRs are being developed by US companies: the Sodium Cooled Fast Reactor (SFR), Lead-Cooled Fast Reactor (LFR), Gas-Cooled Fast Reactor (GFR), and Molten Salt Fast Reactors (MSFR).



Inherently Safe by Design

By operating in the fast spectrum with a liquid metal coolant, FRs are able to provide both high power density and passively safe operation. FRs rely on "fast neutrons" to cause fission, and can be designed without a moderator (e.g., water) in the reactor core. A liquid metal coolant allows for efficient heat transfer at low pressure, promoting natural circulation and passive decay heat removal. In the event of a rise in temperature, the physics of the reactor provides reactivity feedback that inherently reduces the reactor's power. This inherent safety behavior prevents severe accidents, as demonstrated by Experimental Breeder Reactor-II (Image 1). FRs using gas and salts can achieve similar inherent safety performance by passively removing heat, and incorporating self-stabilizing reactivity feedbacks.

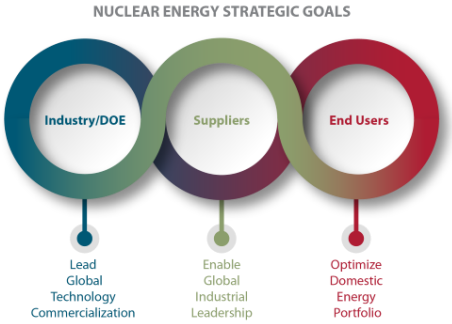
Fuel Cycle Features

The unique properties of FRs enable efficient fuel utilization and waste minimization. FRs can operate with a favorable neutron balance; fission reactions in FRs are capable of creating more neutrons than consumed. By converting these excess neutrons into usable fuel materials, some FRs are designed to produce more fuel. FRs are also flexible to accept a wide range of fuel materials, with many designs capable of recycling existing nuclear waste in a closed fuel cycle. The efficient fuel utilization of FRs can also enable some designs to operate for decades without refueling. FRs offer fuel cycle flexibility, providing a robust fuel supply and improved nuclear waste management.

Experimental Breeder Reactor-II (EBR II) at the National Reactor Testing Station in Idaho

Load Following and Integration

By deploying FRs in an energy mix, power producers are able to provide reliable electricity to customers while integrating with other generation technologies, such as variable renewable energy resources. Flexible load following capabilities allow a reactor to adjust to demand and intermittent supply. In times when less power is needed, fast reactors have a ramp-down rate of less than 15 minutes. When the demand for energy increases, it can be ramped up to full power within minutes.



Additional Fast Reactor Resources:

bit.ly/IAEA-FastReactor-Reference

bit.ly/GAIN-FastReactor

bit.ly/ANL-EBR2-History

HIGH TEMPERATURE REACTORS INFO SHEET

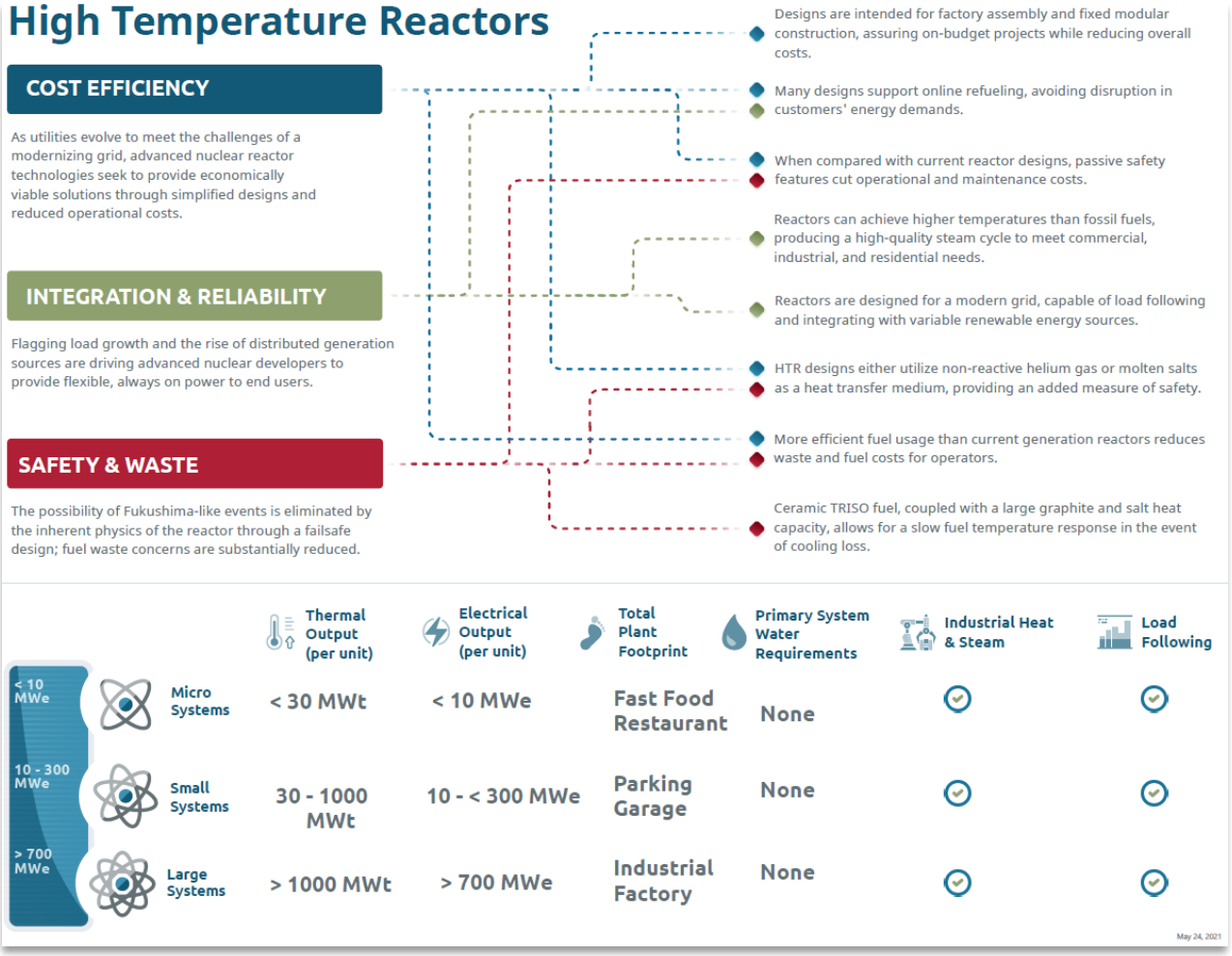
INTRODUCTION

DOE-NE has established the Gateway for Accelerated Innovation in Nuclear (GAIN) to provide the nuclear community with access to the technical, regulatory, and financial support necessary to move innovative nuclear energy technologies toward commercialization while ensuring the continued safe, reliable, and economic operation of the existing nuclear fleet.

Developing safe, reliable sources of carbon-free energy will be the next decade's greatest challenge for US power producers. Several US-based companies are developing High Temperature Reactors (HTRs), a type of advanced nuclear reactor, to help meet that energy challenge.

HTRs are a type of graphite-moderated thermal reactor employing TRISO fuels (see below), differentiating them from other advanced reactor concepts. HTRs use either inert gas or molten salt as a heat transfer medium. Developers of this reactor type offer increased safety, remote power, and industrial applications.

HTRs typically use low enriched uranium fuel to produce higher reactor outlet temperatures than other reactors. For this reason, developers of HTRs offer it as a viable replacement to industrial fossil fuel processes.



Quality Process Heat for Industrial Applications

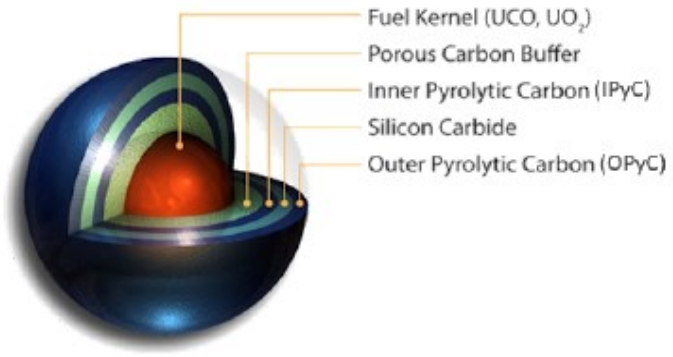
All HTR systems have the ability to reach higher and more precise temperatures than those that use fossil fuels. HTRs' ability to consistently produce clean, quality heat is especially important in industrial chemical processes, where a plant must maintain a set range of temperatures for successful production. HTRs, therefore, can reduce the margin of error for operators, resulting in greater cost efficiencies.

Inherent Safety that Starts at the Fuel Source

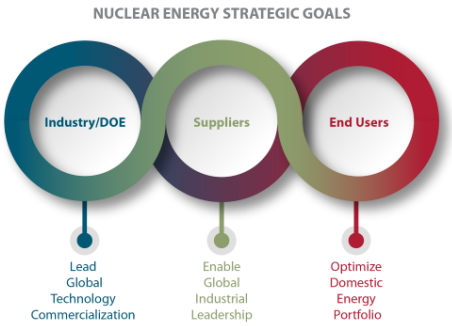
HTRs are built around safety, beginning with advances in nuclear fuel technology. All HTRs use “tri-structural isotropic” fuels, commonly referred to as TRISO fuels (Image 1). TRISO fuel comes in different shapes and sizes; no matter the form, this advanced fuel source contains a small amount of low-enriched uranium fuel within three layers of protective graphite and silicon carbide. These TRISO particles are incorporated into a graphite matrix within spheres ("pebbles") the size of a golf ball or a tennis ball, or into blocks ("compacts"). The coatings around the TRISO particles fully contain fission products resulting from the nuclear reaction, eliminating the need for costly, concrete containment structures.

Load Following and Integration

By deploying HTRs in an energy mix, power producers are able to provide reliable electricity to customers while integrating with other generation technologies, such as variable renewable energy resources. Flexible, load following capabilities of HTRs enable integration with intermittent renewable energy sources; moreover, the high-grade heat produced by HTRs make thermal energy storage or integration with industrial processes possible and attractive during low electricity demand intervals.



A tri-structural isotropic or “TRISO” fuel particle



Additional High Temperature Reactor Resources:

bit.ly/INL-ART-GCR

bit.ly/NRC-Training-Course-HTR

bit.ly/IAEA-ARIS-Database

MOLTEN SALT REACTORS INFO SHEET

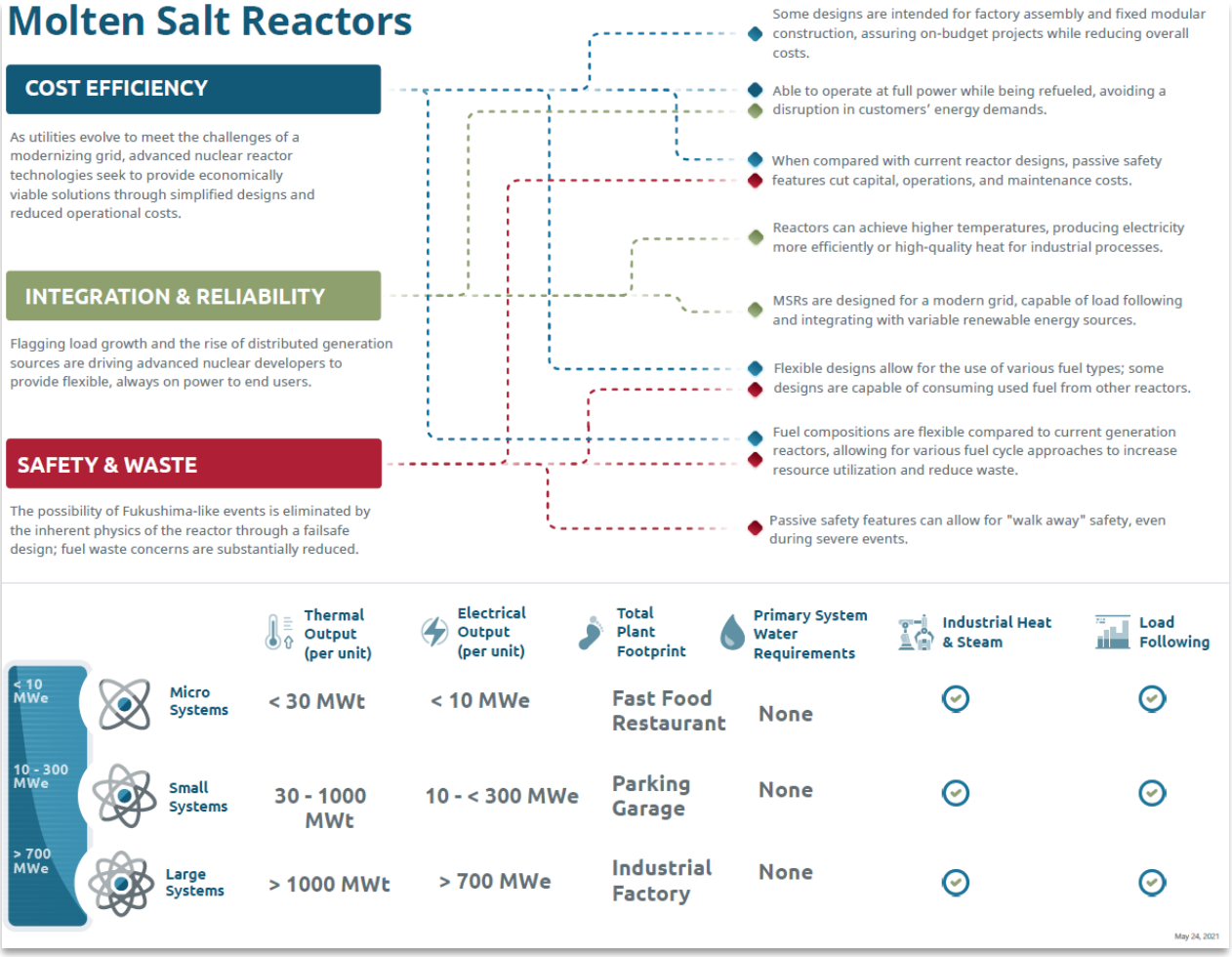
INTRODUCTION

DOE-NE has established the Gateway for Accelerated Innovation in Nuclear (GAIN) to provide the nuclear community with access to the technical, regulatory, and financial support necessary to move innovative nuclear energy technologies toward commercialization while ensuring the continued safe, reliable, and economic operation of the existing nuclear fleet.

Developing safe, reliable sources of carbon-free energy will be the next decade's greatest challenge for power producers in the US. Several US-based companies are developing Molten Salt Reactors (MSRs), a type of advanced nuclear reactor, to help meet that energy challenge.

MSRs utilize low pressure, high temperature fluoride or chloride salts as liquid fuels and coolants. MSRs are different from most other advanced reactor concepts because of their ability to operate in a low pressure environment, as well as at higher temperatures and for longer durations than other reactor types. Developers of this reactor offer increased safety, reduced proliferation risk, passive safety system features, and short-lived waste.

MSRs could play a significant role in closing the nuclear fuel cycle, increasing fuel utilization, and reducing long-lived waste products.

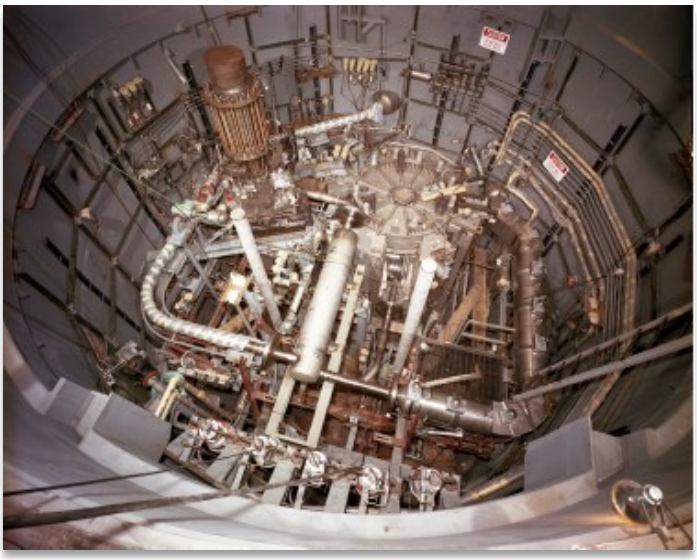


Readily Apparent Safety

Due to the inherent characteristics of low pressure, chemically-inert coolants and liquid fuel systems, MSRs are easily coupled to passive safety systems that eliminate the need for many of the safety systems needed for other reactor types. MSRs can be designed to be "walk away" safe and operate with low pressure components and systems, which improve the economic performance and enhance the safety of the reactor.

High-Quality Energy

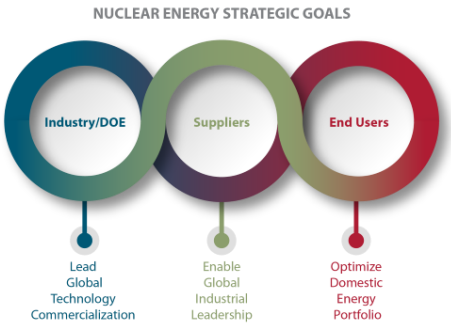
MSRs produce high temperature heat for efficient electricity production and for application in high temperature industrial applications, including the production of hydrogen. MSRs are attractive because of their potential to operate at higher, more efficient temperatures for extended operational cycles.



A TOP VIEW OF THE Molten Salt Reactor Experiment (MSRE) at Oak Ridge National Laboratory

Load Following and Integration

By employing MSRs in an energy mix, a power producer is able to provide reliable energy to its customers while integrating with variable resources. Flexible load following capabilities of MSRs enable integration with intermittent renewable energy sources; moreover, the high-grade heat produced by MSRs make thermal energy storage or integration with industrial processes possible and attractive during low electricity demand intervals.



Additional Molten Salt Reactor Resources:

bit.ly/GAIN-MSR

bit.ly/YouTube-MSR

bit.ly/ORNL-MSR

bit.ly/FluidFuelReactors

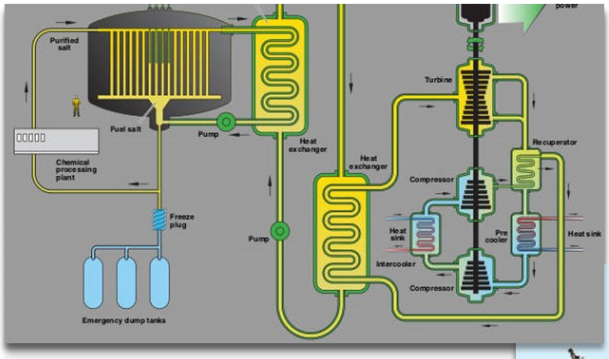
DEVELOPERS

ALPHATECH RESEARCH CORP.

ADVANCED NUCLEAR | DEVELOPER

Alpha Tech Research Corp

Alpha Tech Research Corp is developing thorium fueled Molten Salt Reactor (MSR) technology to enable a new phase in clean, safe power production.



Location: Salt Lake City, UT
Founded: June, 2016
Principal/CEO: Nick Baguley
Major Investors: Non-disclosed
Technology Class: MSR
Reactor Type: MSTIR
Power Output (MWe/MWT): 30MWt
Federal Engagement: DOE, NRC
Preferred Point of Contact: Staci Wheeler / staci@alphatechresearchcorp.com / 801-477-0715

www.alphatechresearchcorp.com

ARC CLEAN ENERGY

ADVANCED NUCLEAR | DEVELOPER

ARC is a clean energy technology company developing the ARC-100, an advanced small modular reactor (SMR) offering inherently safe, reliable and economical carbon free power. ARC leverages the proven technology developed by the US government's Argonne National Labs, which operated successfully for thirty years in Idaho. The ARC-100's simple, modular design provides 100 megawatts of electricity that is cost competitive with fossil fuels. The ARC-100 has been selected by New Brunswick Power in Canada for implementation on their Point Lepreau site with completion targeted for the late 2020s

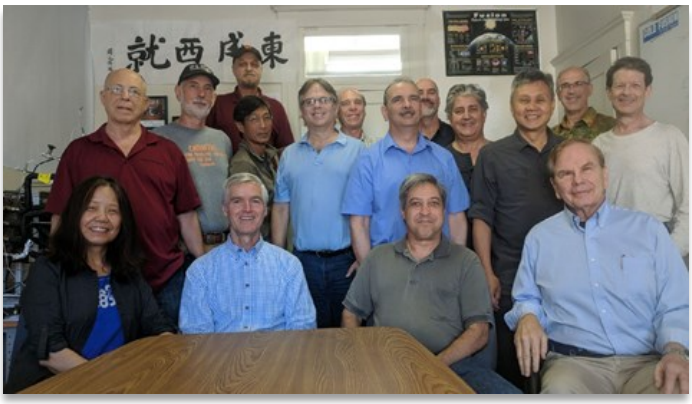
www.arcenergy.co

Location: Washington, DC
Founded: 2006
Principal/CEO: Donald Wolf
Major Investors: Non-disclosed
Technology Class: Advanced small modular reactor
Reactor Type: Sodium cooled fast reactor
Power Output (MWe/MWT): 100 MWe
Federal Engagement: DOE, NRC
Preferred Point of Contact: info@arcenergy.co

BRILLOUIN ENERGY CORP.

ADVANCED NUCLEAR | DEVELOPER

Brillouin Energy Corp. is a clean-technology company located in Berkeley California, which is developing ultra-clean, low-cost, energy technology capable of producing industrially useful thermal energy. Brillouin's technology is based on Low Energy Nuclear Reactions (LENR), which it generates on a controlled basis in its reactors through Controlled Electron Capture Reaction (CECR) concept. Third party verified by SRI in 2016, 2017 and 2018.



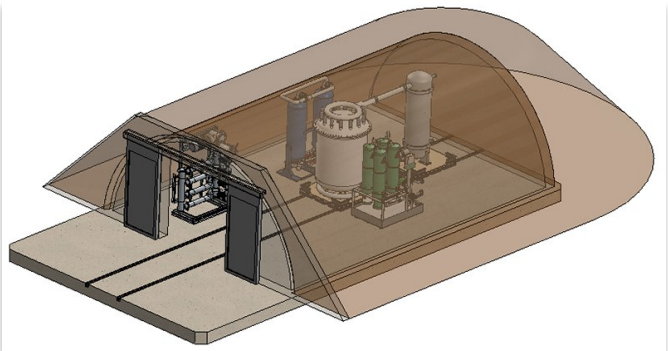
Some of the basic physics of CECR, verified in a TAP with PNNL Feb-2013. Extremely scalable technology designed to drop into shell and tube heat exchangers where the tube is a new type of fire and DTC friendly. No radioactive waste, no penetrating radiation in operation. Four test systems already work with interchangeable parts.

www.brillouinenergy.com

Location: Berkeley, CA
Founded: 2009
Principal/CEO: Robert W. George
Major Investors: 46 Angel Investors
Technology Class: Adaptable gas, liquid, supercritical CO_2 Water / steam 80 -700C
Reactor Type: CECR, low energy nuclear reactions
Power Output (MWe/MWT): 10^{-6} - 3000+ MWe / 10^{-5} - 8000 MWt
Federal Engagement: NA
Preferred Point of Contact: David Firshein / dnf@brillouinenergy.com / 415-419-6429

BWX Technologies, Inc.

BWX Technologies, Inc. (BWXT) provides safe and effective nuclear solutions for national security, clean energy, environmental remediation, nuclear medicine and space exploration. With approximately 6,700 employees, BWXT has 12 major operating sites in the U.S. and Canada. We are the sole manufacturer of naval nuclear reactors for U.S. submarines and aircraft carriers. Our company supplies precision manufactured components, services and fuel for the commercial nuclear power industry across four continents. Our joint ventures provide environmental remediation and nuclear operations management at more than a dozen U.S. Department of Energy and NASA facilities. BWXT's technology is also driving advances in medical radioisotope production in North America and microreactors for various defense and space applications.



Through its entities, BWXT is developing BANR (BWXT Advanced Nuclear Reactor). BANR is a transportable microreactor designed to utilize advanced TRISO particle fuel to achieve higher uranium loading and improved fuel utilization.

www.bwxt.com

Location: Lynchburg, VA
Founded: 1857
Principal/CEO: Rex D. Geveden
Major Investors: BWX Technologies, Inc. is publicly traded on the New York Stock Exchange
Technology Class: High Temperature Gas Reactor
Reactor Type: High Temperature Gas Microreactor
Power Output (MWe/MWT): 17 MWe / 50 MWt
Federal Engagement: DOE, NRC,
Preferred Point of Contact: Joshua L. Parker / jlparker2@bwxt.com / 434-316-7652

COLUMBIA BASIN CONSULTING GROUP

ADVANCED NUCLEAR | DEVELOPER

CBCG is a business management and technical consulting firm which provides services relating to advanced reactor engineering and development.

CBCG PbBi Nuclear Plant Development - Power When You *Need* it to BE-THERE

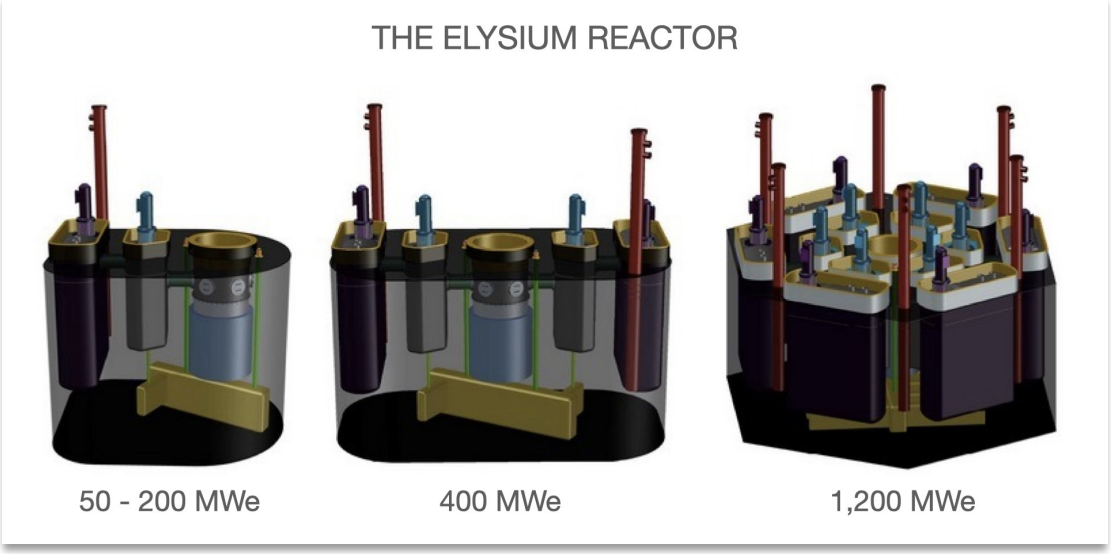
www.cbcgllc.com

Location: Kennewick, WA
Founded: 1998
Principal/CEO: William J. Stokes
Major Investors: Self-funded
Technology Class: Liquid metal cooled
Reactor Type: Lead-bismuth and sodium
Power Output (MWe/MWT): 260 MWe / 600 MWt; 100 MWe / 250 MWt
Federal Engagement: DOE, GAIN, Other
Preferred Point of Contact: William J. Stokes / info@cbcgllc.com

ELYSIUM INDUSTRIES

ADVANCED NUCLEAR | DEVELOPER

Elysium is developing a Molten Chloride Salt Fast Reactor as its first product, destined to help eradicated energy poverty and pollution globally. Created by social entrepreneurs and US Naval Reactor designers. Elysium's reactor plant concept addresses many of the obstacles nuclear energy has faced in recent years, including but not limited to passive safety, smaller physical footprint, and the ability to recycle nuclear waste.



www.elysiumindustries.com

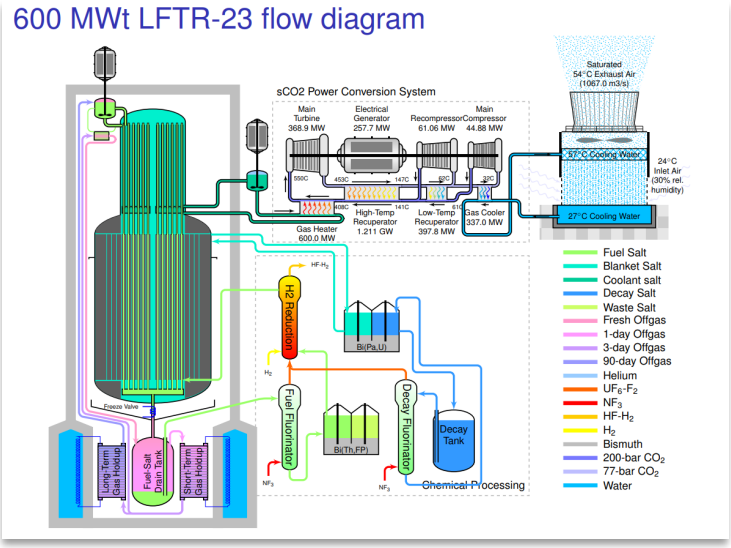
Location: New York, NY
Founded: 2015
Principal/CEO: Carl Perez
Major Investors: Individual Investors
Technology Class: Advanced Reactor
Reactor Type: Molten Salt Reactor
Power Output (MWe/MWT): 10 MWt (MWe) - 3000 MWT (1200 MWe)
Federal Engagement: DOE, GAIN
Preferred Point of Contact: Carl Perez / c.perez@elysium-v.com / 646-706-3698

ADVANCED NUCLEAR | DEVELOPER

FLIBE ENERGY, INC.

Flibe Energy, Inc. (FEI) was founded in 2011 in Huntsville, Alabama to design and develop highly-efficient molten-salt reactors for power generation and waste reduction. Their designs use lithium-fluoride and sodium-chloride salt mixtures coupled to closed-cycle gas turbines for power conversion. They also have integral chemical processing systems. Their work is an evolution of the Molten-Salt Reactor Program at Oak Ridge National Laboratory from 1957-1976. Their work will culminate in the efficient use of thorium as the basic fuel for planetary energy. They are currently executing a research contract with the Department of Energy to test an innovative approach to the fluorination of lithium-fluoride salt.

600 MWt LFTR-23 flow diagram



Location: Huntsville, AL and Richland, WA
Founded: 2011
Principal/CEO: Kirk Sorensen
Major Investors: Private
Technology Class: Molten salt reactor
Reactor Type: Liquid fuel/coolant, fluoride salts, thermal spectrum, graphite moderator, thorium/U-233 fuel cycle
Power Output (MWe/MWT): 250 MWe / 600 MWt
Federal Engagement: DOE, GAIN, NRC
Preferred Point of Contact: Kurt Harris / kurt.harris@flibe-energy.com

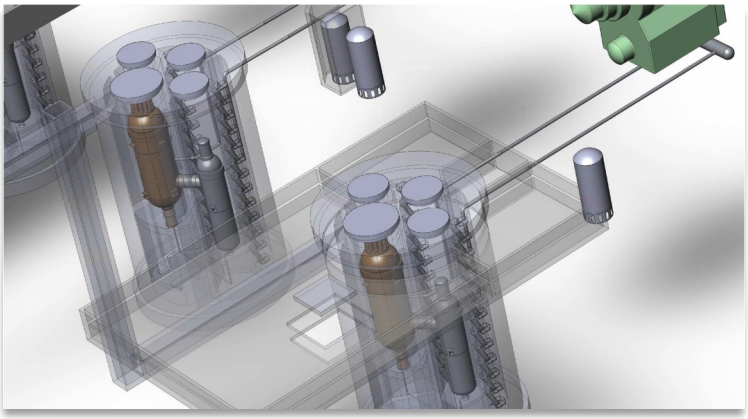
https://flibe-energy.com/

FRAMATOME, INC.

ADVANCED NUCLEAR | DEVELOPER

Framatome is a major international player in the nuclear energy market recognized for its innovative solutions and value-added technologies for designing, building, maintaining, and advancing the global nuclear fleet. The company designs, manufactures, and installs components, fuel and instrumentation and control systems for nuclear power plants and offers a full range of reactor services.

Framatome is developing the Steam Cycle HTGR Generation IV advanced reactor concept. Its scalable design provides options for a variety of customer needs for high-temperature steam and electricity. Its unparalleled safety profile allows co-location with customer facilities. True walk-away safety and restart capability following a design-basis accident make the SC-HTGR a low investment risk for plant owners and operators.



www.framatome.com

Location: Lynchburg, VA
Founded: 1989
Principal/CEO: Gary Mignogna
Major Investors: Non-disclosed
Technology Class: High temperature gas cooled
Reactor Type: Steam cycle high temperature gas cooled reactor
Power Output (MWe/MWT): 22-272 MWe / 50-625 MWt
Federal Engagement: DOE, GAIN, ARPA-E, NRC
Preferred Point of Contact: Darryl Gordon / Darryl.gordon@framatome.com / 434-832-5199

GE HITACHI NUCLEAR ENERGY

BWRX-300 Small Modular Reactor (SMR) - GE Hitachi Nuclear Energy (GEH) is a world leader in new plant technology, fuel and services. GEH's BWRX-300 is a 300 MWe water-cooled, natural circulation small modular reactor with passive safety systems that leverages the design and licensing basis of the company's U.S. NRC-certified ESBWR. Through dramatic and innovative design simplification, GEH projects the BWRX-300 will require significantly less capital cost per MW when compared to other SMR designs. By leveraging the ESBWR design certification, utilizing the licensed and proven GNF2 fuel design, and incorporating proven components and supply chain expertise the BWRX-300 can, GEH believes, become the lowest-risk, most cost-competitive and quickest to market SMR.

Natrium Integrated Energy System - GEH is working with TerraPower to develop the Natrium™ technology, a sodium fast reactor with integrated energy storage (IES). Together the team reinvented what nuclear can be: flexible and cost competitive. Natrium's architecture has been specifically designed to lower operational costs, simplify construction and reduce schedule compared to previous reactor types. On a per MWe basis, it uses 80% less nuclear-grade concrete compared to today's large reactors. Its energy storage system can provide customizable GWhe scale energy storage to capture greater revenue thereby eliminating the economic penalty for load following while supporting grids with high renewables penetration.

Versatile Test Reactor - GEH and TerraPower are on the team led by Bechtel National Inc. to support the design and build phase of the Versatile Test Reactor, a one-of-a-kind facility that would support research and development of innovative, clean nuclear energy technologies.

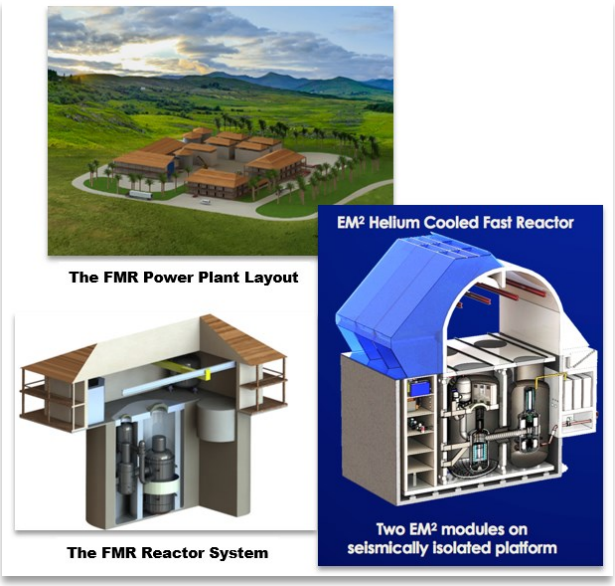
www.nuclear.gepower.com

Location: Wilmington, NC
Founded: 1955
Principal/CEO: Jay Wileman
Major Investors: Confidential
Technology Class: BWRX-300 - GEN III+ SMR; Natrium - GEN IV Advanced Reactor
Reactor Type: BWRX-300 - Boiling water reactor; Natrium - Sodium fast reactor
Power Output (MWe/MWT): BWRX-300 - 300 MWe / 910 MWt; Natrium - 345 MWe /840 MWt (The IES system can boost output to 500MWe for more than 5 1/2 hours to serve peak demand)
Federal Engagement: DOE, NRC
Preferred Point of Contact: Bob Dunn / robert.dunn@ge.com;

GENERAL ATOMICS ELECTROMAGNETIC SYSTEMS

General Atomics Electromagnetic Systems (GA-EMS) Group has been at the forefront of innovation in nuclear energy since the 1950s. We continue to push the boundaries of what is possible in advanced nuclear reactors while helping to sustain our current reactor fleet and spinning off advanced material technologies that have the potential to enhance public safety and well-being. GA's TRIGA® research reactors are some of the most successful reactor designs in history.

GA-EMS is building on its experience with TRIGA® in developing the next generation of advanced fission reactors, such as the 50 MWe Fast Modular Reactor (FMR) for distributed power generation in the mid-2030s to be followed by the 265 MWe 4-unit (1 GWe) Energy Multiplier Module (EM2) for grid-scale power generation. These two load-following advanced high temperature helium-cooled fast reactors have a net efficiency as high as 53%. Both reactors employ cutting-edge advances in materials science to address the four core challenges facing nuclear energy – safety, waste, cost, and non- proliferation. EM2 and FMR can be powered by fresh or spent nuclear fuel and operated without refueling for up to 30 for EM2 and 9 years for the FMR.



The FMR Power Plant Layout

The FMR Reactor System

GA is developing silicon carbide composites, SiGA®, for Accident Tolerant Fuel cladding and reactor components, such as those in the EM2 and FMR. Innovative technology solutions are underway for specialty nuclear fuels, radioactive waste remediation, advanced materials for extreme environment applications, space reactors for both propulsion and power.

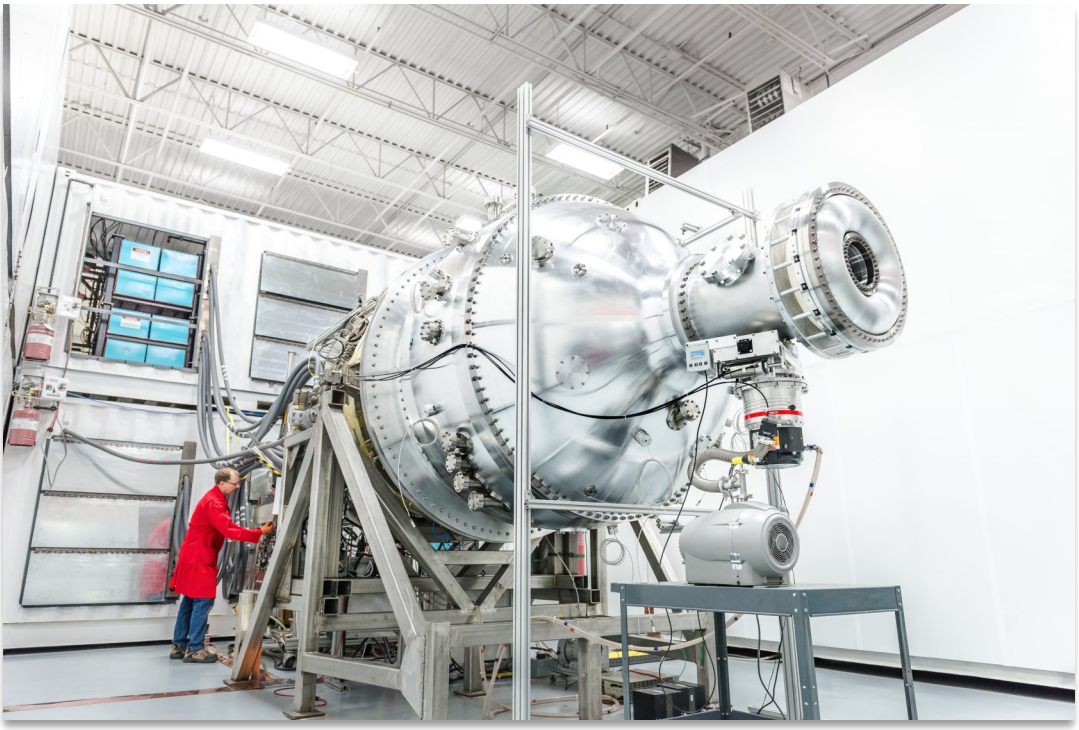
www.ga.com/ems

Location: San Diego, CA
Founded: 1955
Principal/CEO: Neal Blue
Major Investors: Non-disclosed
Technology Class: Advanced nuclear reactors, fuels and materials
Reactor Type: High temperature gas cooled fast reactors
Power Output (MWe/MWT): 50MWe / 112 MWt (FMR); 4 x 265 MWE / 4 x 500 MWt (EM2)
Federal Engagement: DOE, GAIN, NRC, DARPA, DoD, NASA, Other
Preferred Point of Contact: Ron Faibish / ron.faibish@ga.com / 202-713-8333

GENERAL FUSION

generalfusion®

General Fusion is the world's most advanced private fusion technology venture, pursuing a faster and more practical path to commercially viable fusion energy.



generalfusion.com

Location: Burnaby, Canada
Founded: 2002
Principal/CEO: Christofer Mowry
Major Investors: Government of Canada Strategic Innovation Fund, Bezos Expeditions, Khazanah Nasional, Chrysalix Energy VC, Braemar Energy Ventures, SET Ventures, Cenovus Energy, BDC Canada, GrowthWorks, Entrepreneurs Fund, Sustainable Development Technology Canada
Technology Class: Fusion
Reactor Type: Magnetized target fusion
Power Output (MWe/MWT): 200 MWe
Federal Engagement: Other
Preferred Point of Contact: Grace Sullivan / grace.sullivan@generalfusion.com

HOLOSGEN LLC

HolosGen™

HolosGen develops mobile scalable integral nuclear generators with simplified and innovative designs that are optimized to produce economical, distributable, pollutant-free, and most importantly, safe electricity.

ADVANCED NUCLEAR | DEVELOPER

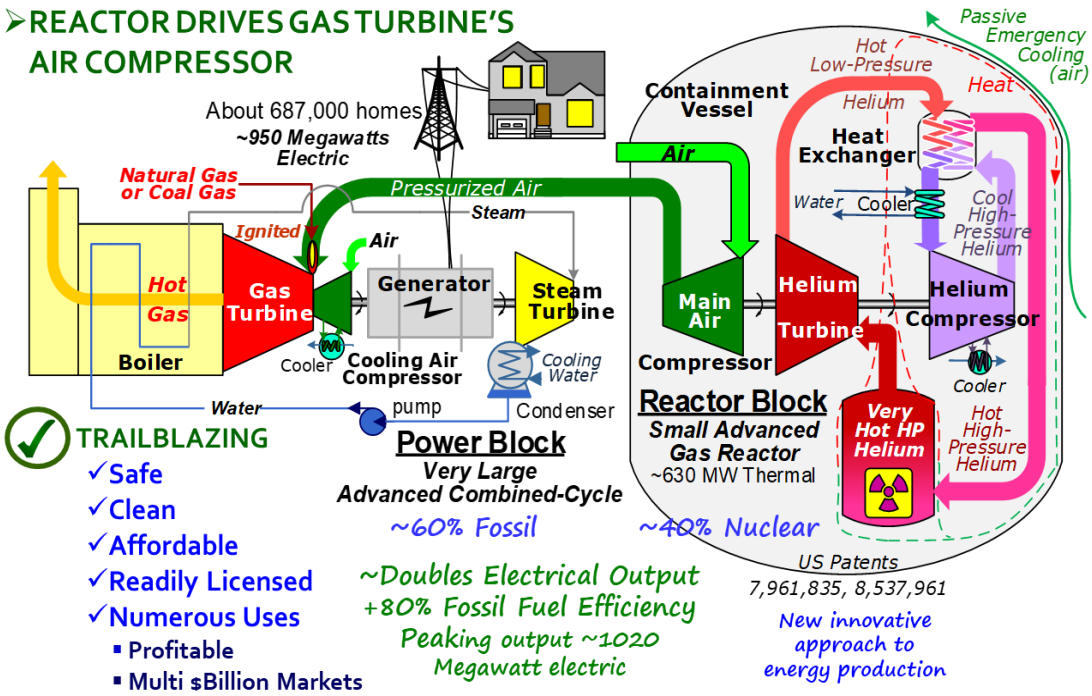
Location: Manassas Park, VA
Founded: 2017
Principal/CEO: Claudio Filippone
Major Investors: Non-disclosed
Technology Class: Gas cooled
Reactor Type: High temperature gas reactor
Power Output (MWe/MWT): 3-81 MWe / 5-135 MWt
Federal Engagement: N/A
Preferred Point of Contact: Claudio Filippone

www.holosgen.com

ADVANCED NUCLEAR | DEVELOPER

HYBRID POWER TECHNOLOGIES LLC

Hybrid Power Technologies LLC



US SMALL BUSINESS INNOVATION

Location: Overland Park, KS
Founded: 2011
Principal/CEO: Michael F. Keller
Major Investors: Privately funded
Technology Class: Gas cooled
Reactor Type: Graphite moderated, helium cooled
Power Output (MWe/MWT): 950 MWe / 630 MWt
Federal Engagement: N/A
Preferred Point of Contact: Michael F. Keller / m.keller@hybridpwr.com / 913-681-7687

www.www.hybridpwr.com

KAIROS POWER LLC

ADVANCED NUCLEAR | DEVELOPER

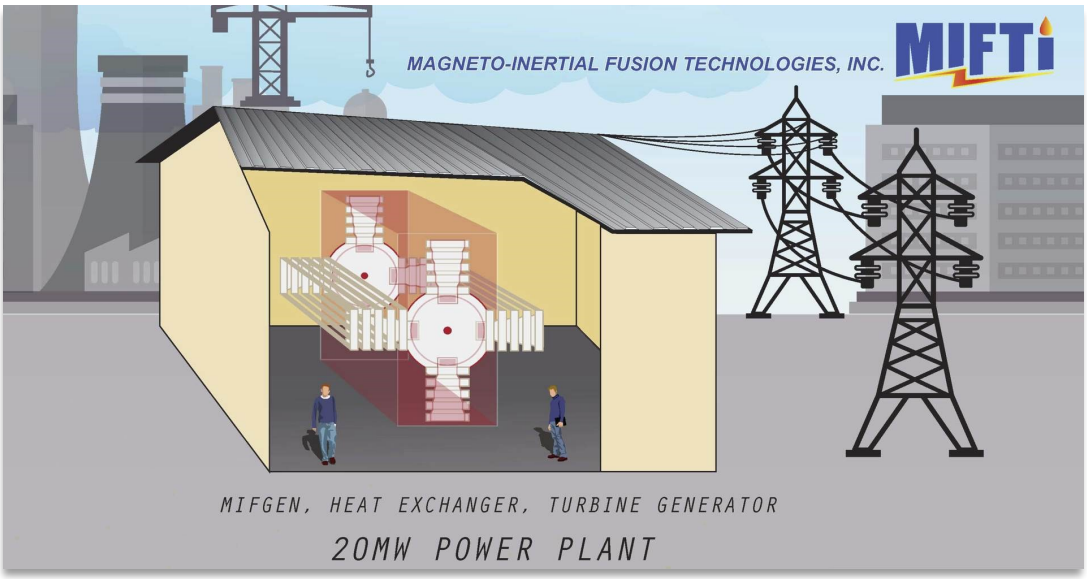
Our mission: enable the world's transition to clean energy, with the ultimate goal of dramatically improving people's quality of life while protecting the environment. Kairos Power will commercialize the fluoride salt-cooled high-temperature reactor (FHR), which can be deployed with robust safety, cost competitiveness through high efficiency and low-pressure small modular design, and flexible operation to accommodate the expansion of variable renewables.

www.kairospower.com

Location: San Francisco, CA
Founded: 2016
Principal/CEO: Michael Laufer
Major Investors: Non-disclosed
Technology Class: Solid-fueled/Molten salt cooled
Reactor Type: Graphite-moderated, fluoride salt-cooled, high temperature reactor
Power Output (MWe/MWT): N/A
Federal Engagement: GAIN
Preferred Point of Contact: Jaclyn Rodriguez / rodriguez@kairospower.com

MAGNETO-INERTIAL FUSION TECHNOLOGIES, INC

MIFTI specializes in fusion energy and medical isotope technology.



Location: Tustin, CA
www.miftec.com
Founded: 2009
Principal/CEO: Jerry Simmons, CEO / Dr. Hafiz Rahman, President, Chief Scientist
Major Investors: DOE, ARPA-E, Strong Atomics Fund 1, U.S. Nuclear Corp. (UCLE)
Technology Class: Thermonuclear fusion
Reactor Type: Nuclear fusion reactor
Power Output (MWe/MWT): 20 MWe
Federal Engagement: DOE, ARPA-E, LLNL, ORNL, UNR/NTF
Preferred Point of Contact: Jerry Simmons / jerry@miftec.com / 714-329-3990

MICRONUCLEAR LLC

MicroNuclear LLC is focused on developing energy solutions. Current efforts include development of the Molten Salt Nuclear Battery (MsNB) as well as instrumentation and components for severe environment applications.

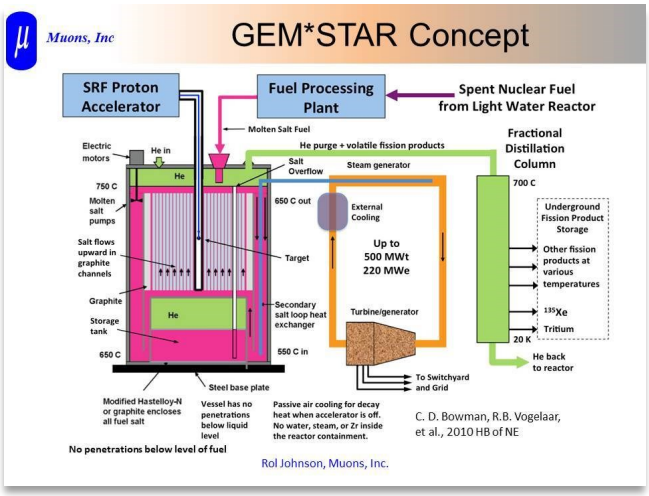
micronucleartech.com

Location: Brentwood, TN
Founded: 2017
Principal/CEO: Paul Marotta
Major Investors: Proprietary private investors
Technology Class: Advanced Microreactor
Reactor Type: Molten Salt Dissolved Fuel
Power Output (MWe/MWT): 5-10MWe / 10-20MWth
Federal Engagement: DOE, GAIN, NRC
Preferred Point of Contact: Paul Marotta / paul@micronucleartech.com / 615-417-3649

MUONS, INC.

Muons, Inc.
Innovation in Research

Partnering with national labs and universities with their extraordinary people and facilities, Muons has leveraged its creative talents to provide solutions to many problems of global and national interest. Muons has received over $30M in competitive DOE contracts and Small Business Innovation and Technology Transfer Research grants, which have generated intellectual property as well as appreciation for our work in the accelerator and reactor communities. Examples of our inventions are included in discovery science (Muon Collider, the next atom smasher); medicine (Energy-Recovery Linacs for commercial production of new radioisotopes for therapy and diagnostics); national security (photon and neutron sources for cargo scanning); energy and environment (Mu*STAR subcritical system for carbon-free energy production); and industry (magnetron power sources for RF cavities). As a supporter of science and technology, Muons supports students and post-docs and provides computer programs for accelerator and reactor communities.



Location: Batavia, IL
Founded: 2002
Principal/CEO: Rolland Johnson (President)
Major Investors: Rolland Johnson
Technology Class: Advanced reactor developer
Reactor Type: SRF linac driven subcritical molten salt thermal spectrum SMR
Power Output (MWe/MWT): 220 MWe/500 MWt
Federal Engagement: DOE, ARPA-E, GAIN, DOE SBIR-STTR Programs
Preferred Point of Contact: Rolland Johnson / rol@muonsinc.com / 757-870-6943

www.muonsinc.com

NIOWAVE, INC.

Niowave is utilizing transformative science and technology for advancing nuclear power to meet the nation's energy and security needs. Niowave's Radioisotope Program established both the facilities and the NRC license to operate a subcritical assembly and perform nuclear fuel reprocessing. The team is developing a hybrid fast/thermal spectrum subcritical testbed, coupled to a superconducting electron linac, to provide peak fast-spectrum neutron fluxes greater than 1E15 n/cm2s in heavy liquid-metal environment. The facility will be used to test novel fuels, materials, instruments and components, reactor safety designs, provide data for reactor code development, and support the regulatory process for licensing novel technology.

www.niowaveinc.com

Location: Lansing, MI
Founded: 2005
Principal/CEO: Terry L. Grimm (President)
Major Investors: Privately funded
Technology Class: Liquid metal cooled (lead-bismuth eutectic)
Reactor Type: Hybrid fast/thermal spectrum subcritical testbed
Power Output (MWe/MWT): 0.1-10 MWt
Federal Engagement: DOE, NRC, DOD, NIH
Preferred Point of Contact: Robert Wahlen / wahlen@niowaveinc.com / 517-999-3475

NUGEN, LLC

NuGen is developing a compact, highly integrated single-cycle high-temperature microreactor called the NuGen Engine™. Its simple compact configuration is due to its innovative spiral fuel core, its streamlined energy conversion system, and its full integration. Hallmarks include its simplicity and the resulting scalability and high manufacturability of the reactor. It could be deployed for a broad range of uses, including providing power (electricity and heat) to remote locations, military installations (including off-grid electricity), and mining and desalination sites. The US Patent Office has recently issued NuGen two patents: Integrated System for Converting Nuclear Energy into Electrical, Rotational, and Thermal Energy, US Patent Nos. 10,685,720 (6/17/2020) and 10,685,756 (6/17/2020).

www.nucdev.com

Location: Charlotte, NC
Founded: 2006
Principal/CEO: Steve Rhyne
Major Investors: Founder
Technology Class: Advanced HTGR
Reactor Type: Fast spectrum
Power Output (MWe/MWT): 1-3 MWe
Federal Engagement: Advanced Reactor Demonstration application to be submitted August 2020
Preferred Point of Contact: Steve Rhyne / steve@nucdev.com / 704-307-7280

NUSCALE POWER

ADVANCED NUCLEAR | DEVELOPER

NuScale Power has developed a new modular light water reactor nuclear power plant to supply energy for electrical generation, district heating, desalination, and other process heat applications. This groundbreaking small modular reactor (SMR) design features a fully factory-fabricated NuScale Power Module™ capable of generating 77 MW of electricity using a safer, smaller, and scalable version of pressurized water reactor technology. NuScale's scalable design—power plants that can house up to four, six, or 12 individual power modules—offers the benefits of carbon-free energy and reduces the financial commitments associated with gigawatt-sized nuclear facilities. The majority investor in NuScale is Fluor Corporation, a global engineering, procurement, and construction company with a 60-year history in commercial nuclear power.

NuScale is headquartered in Portland, OR and has offices in Corvallis, OR; Rockville, MD; Charlotte, NC; Richland, WA; and London, UK. Follow us on Twitter: @NuScale_Power, Facebook: NuScale Power, LLC, LinkedIn: NuScale-Power, and Instagram: nuscale_power. Visit NuScale Power's website.

www.nuscalepower.com

Location: Portland, OR
Founded: 2007
Principal/CEO: John Hopkins
Major Investors: Fluor Corporation
Technology Class: Water cooled
Reactor Type: Integral pressurized water reactor
Power Output (MWe/MWT): 50 MWe
Federal Engagement: DOE, NRC
Preferred Point of Contact: Ryan Dean, Sr. Public Affairs Specialist / rdean@nuscalepower.com

RADIANT

RADIANT

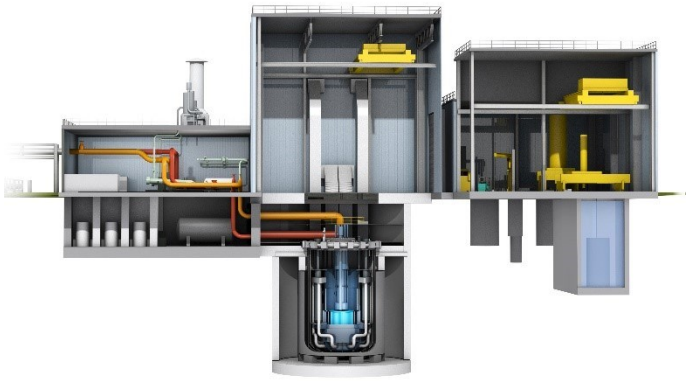
Radiant is making nuclear power portable. Radiant's mission is to develop an economical, reliable reactor that will transform the nuclear industry through autonomous operation. Portable microreactors can be used for disaster relief scenarios, resilient backup power, or as a microgrid power source. Our design uses only proven, qualified materials and technology and will achieve full scale demonstration in 5 years.

www.radiantnuclear.com

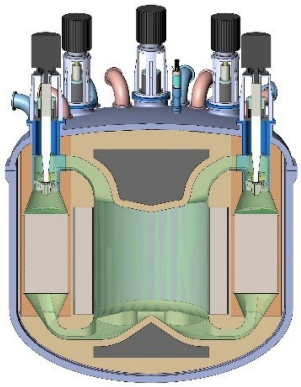
Location: El Segundo, CA
Founded: 2019
Principal/CEO: Douglas Bernauer
Major Investors: Boost VC
Technology Class: micro-HTGR
Reactor Type: HTGR
Power Output (MWe/MWT): 1.2 MWe /3.5 MWt
Federal Engagement: DOE, ARPA-E, GAIN, NRC, NASA
Preferred Point of Contact: Douglas Bernauer / doug@radiantnuclear.com / 216-965-3509

TERRAPOWER, LLC

TerraPower is a nuclear innovation company that originated with Bill Gates and a group of like-minded visionaries who evaluated the fundamental challenges to raising living standards around the world. TerraPower's mission is to solve the world's toughest problems in energy, climate and human health through innovative nuclear technology.



Natrium™ Reactor



Molten Chloride Fast Reactor

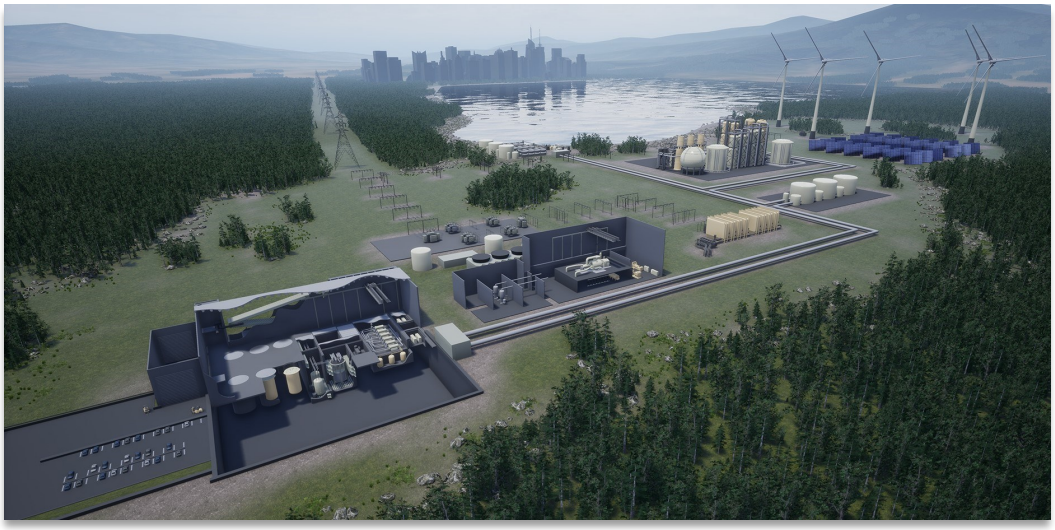
www.terrapower.com

Location: Bellevue, WA
Founded: 2008
Principal/CEO: Bill Gates (Chairman), Chris Levesque (President and CEO)
Major Investors: Non-disclosed
Technology Class: Liquid metal and salt cooled
Reactor Type: Natrium™ reactor—sodium-cooled fast reactor; Molten chloride fast reactor—molten salt/liquid fuel fast reactor
Power Output (MWe/MWT): Natrium reactor—345 MWe for demonstration project, flexible sizing up to gigawatt scale; Molten chloride fast reactor—flexible size range up to 800 MWe
Federal Engagement: DOE, NRC
Preferred Point of Contact: press@terrapower.com

TERRESTRIAL ENERGY USA, INC.

TERRESTRIAL ENERGY USA

Terrestrial Energy USA is developing an advanced Small Modular Reactor (aSMR) design using Integral Molten Salt Reactor (IMSR®) technology to provide cost-competitive electricity and process heat to U.S. industry, and plans for first commercial deployment in the 2020s. The IMSR® design is a graphite moderated, LEU once-through fueled, fluoride molten salt reactor (MSR) that uses a replaceable reactor core architecture.



www.terrestrialusa.com

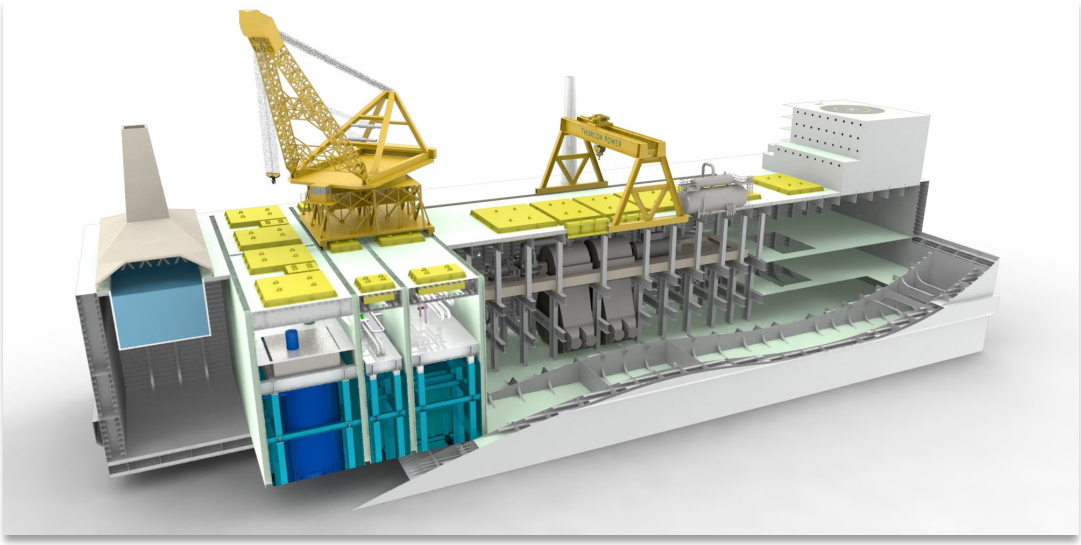
Location: Charlotte, NC
Founded: 2014
Principal/CEO: Simon Irish
Major Investors: Private investors
Technology Class: Advanced small modular reactor
Reactor Type: Molten salt reactor
Power Output (MWe/MWT): 390 MWe / 884 MWth
Federal Engagement: DOE, GAIN, NRC
Preferred Point of Contact: Robin Rickman / rrickman@terrestrialusa.com / 646-687-8212 ext. 531

THORCON INTERNATIONAL

THORCON
POWERING UP OUR WORLD

ADVANCED NUCLEAR | DEVELOPER

ThorCon is developing a hybrid thorium/uranium liquid fission power plant that generates clean, full-time electric power at a cost cheaper than coal.



thorconpower.com

Location: Stevenson, WA; Singapore
Founded: 2016
Principal/CEO: Lars Jorgensen (CEO)
Major Investors: Non-disclosed
Technology Class: Salt cooled
Reactor Type: Thermal molten salt reactor
Power Output (MWe/MWT): 250 MWe / 557 MWt
Federal Engagement: N/A
Preferred Point of Contact: info@thorconpower.com

ULTRA SAFE NUCLEAR CORPORATION

Ultra Safe Nuclear is a 100+ employee technology company, well balanced between design, licensing, manufacture and project development, with a mix of young and senior engineers, material scientists and businesspeople, and a well-established network of suppliers and high-quality partnerships. We have a “best in business” workforce that is highly motivated, well tested and demonstrably capable of meeting tough development and commercial milestones. We are able to recruit competitively in all areas of operations in multiple countries.

USNC's mission provide hardware and services for reliable energy anywhere – on Earth and in Space. Developed since 2015, MMR is now becoming reality – the first in a family of hardware and service products for reliable energy anywhere. We are further utilizing our design, licensing, and technology capabilities, such as ceramic additive manufacturing and proprietary sintering techniques, to develop nuclear power systems for advanced applications on earth and in space. These include Transportable Power Units, Nuclear Thermal Propulsion and Lunar Surface Power systems.

Ultra Safe Nuclear operates through three divisions – POWER, CORE, and TECH.

Ready to Build.
USNC Power is developing commercial-grade, zero-carbon, zero-risk Energy Systems for power and heat utilization - on or off-grid.

Safety Matters.
USNC Core develops materials and fuels designed and manufactured at scale.

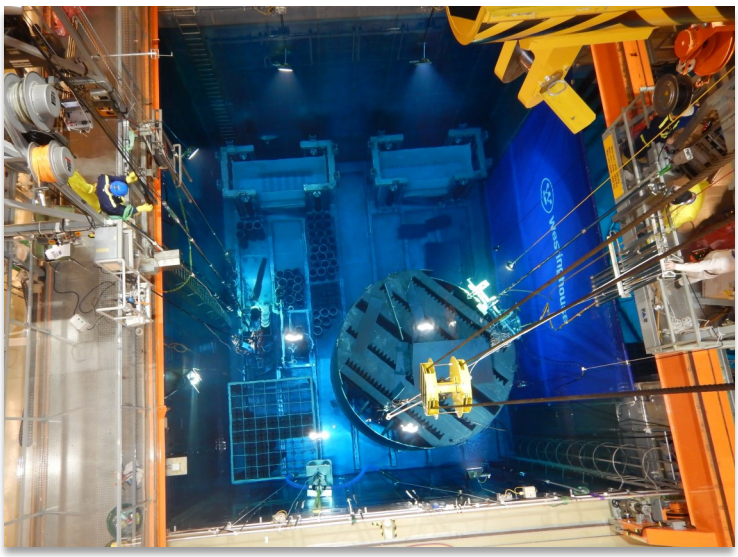
No Limits.
USNC Tech develops advanced systems and technology targeting space applications for commercial and government customers.

https://usnc.com

Location: Seattle, WA
Founded: 2011
Principal/CEO: Francesco Venneri
Major Investors: Non-disclosed
Technology Class: High temperature gas reactor
Reactor Type: Gas cooled high temperature reactor with FCM fuel pellets in graphite blocks
Power Output (MWe/MWT): 5 MWe / 15 MWTh
Federal Engagement: DOE, ARPA-E, GAIN, NRC
Preferred Point of Contact: Cristian Rabiti / c.rabiti@usnc.com / 208-680-4518 (USNC)
Brandon Seifert / b.seifert@usnc-tech.com / 612-723-1664 (USNC-Tech)

WESTINGHOUSE ELECTRIC COMPANY LLC

Westinghouse Electric Company is the world's pioneering nuclear energy company and is a leading supplier of nuclear plant products and technologies to utilities throughout the world. Westinghouse supplied the world's first commercial pressurized water reactor in 1957 in Shippingport, PA, United States. Today, Westinghouse technology is the basis for approximately one-half of the world's operating nuclear plants. For more information, please visit www.westinghousenuclear.com.



www.westinghousenuclear.com

Location: Cranberry Township, PA
Founded: 1886
Principal/CEO: Patrick Fragman (President and CEO)
Major Investors: Brookfield Business Partners L.P
Technology Class: Advanced modular reactor
Reactor Type: Lead cooled fast reactor; heat pipe cooled reactor
Power Output (MWe/MWT): Lead cooled fast reactor- 400-500 MWe / 950 MWt; Heat pipe cooled reactor- 0.5-6 MWe / 2-20 MWt
Federal Engagement: DOE, ARPA-E, GAIN, NRC
Preferred Point of Contact: Michael Valore / valorema@westinghouse.com

X-ENERGY, LLC

X-energy is a nuclear reactor and fuel design engineering services company developing Generation IV, high-temperature gas-cooled nuclear reactor designs that are smaller, simpler and meltdown-proof when compared to conventional nuclear designs.

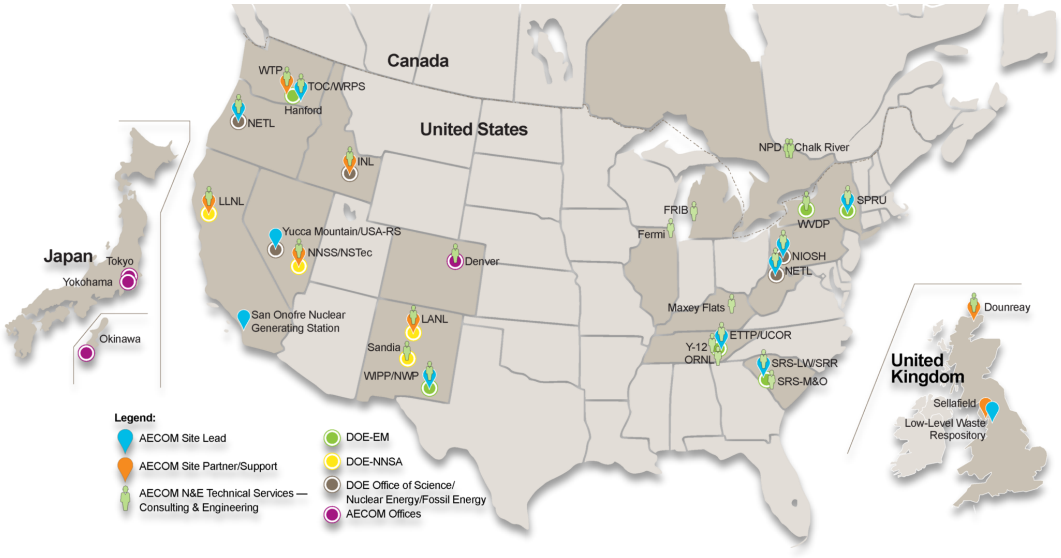
www.x-energy.com

Location: Greenbelt, MD
Founded: 2009
Principal/CEO: Sam Ghaffarian
Major Investors: Non-disclosed
Technology Class: Gas cooled
Reactor Type: High temperature gas cooled pebble bed reactor
Power Output (MWe/MWT): 76 MWe / 200 MWt
Federal Engagement: DOE, GAIN, ARPA-E, NRC
Preferred Point of Contact: Jeff Harper / jharper@x-energy.com

SUPPLIERS

AECOM

AECOM is a global network of experts working with clients, communities and colleagues to develop and implement innovative solutions to the world's most complex challenges, from delivering clean water and energy to helping governments maintain stability and security. AECOM connects expertise across services, markets, and geographies to deliver transformative outcomes.



Location: Aiken, SC
Founded: 1990
Principal/CEO: Mike Burke
Major Customers: Non-disclosed
Federal Engagement: DOE, Other
Preferred Point of Contact: Eric Knox / eric.knox@aecom.com

www.aecom.com

ANALYSIS AND MEASUREMENT SERVICES CORPORATION

INNOVATING NUCLEAR TECHNOLOGY

ANALYSIS AND MEASUREMENT SERVICES CORPORATION

AMS has decades of I&C testing experience within the operating fleet of light water reactors. As experts in I&C technologies, AMS offers next-generation reactor developers key insight and support in a variety of areas including I&C design specification support, pre-qualification testing of I&C sensors and cabling, development of I&C maintenance strategies and implementation procedures, implementation of online monitoring technologies, and a variety of other maintenance and diagnostic testing services.

ADVANCED NUCLEAR | SUPPLIER

Location: Knoxville, TN
Founded: 1977
Principal/CEO: H.M. Hashemian
Major Customers: Nuclear Power Plants and Facilities
Federal Engagement: DOE, NRIC, GAIN
Preferred Point of Contact: Adam Deatherage / adam@ams-corp.com / 865-691-1756 ext.223

www.ams-corp.com

BECHTEL NUCLEAR, SECURITY & ENVIRONMENTAL

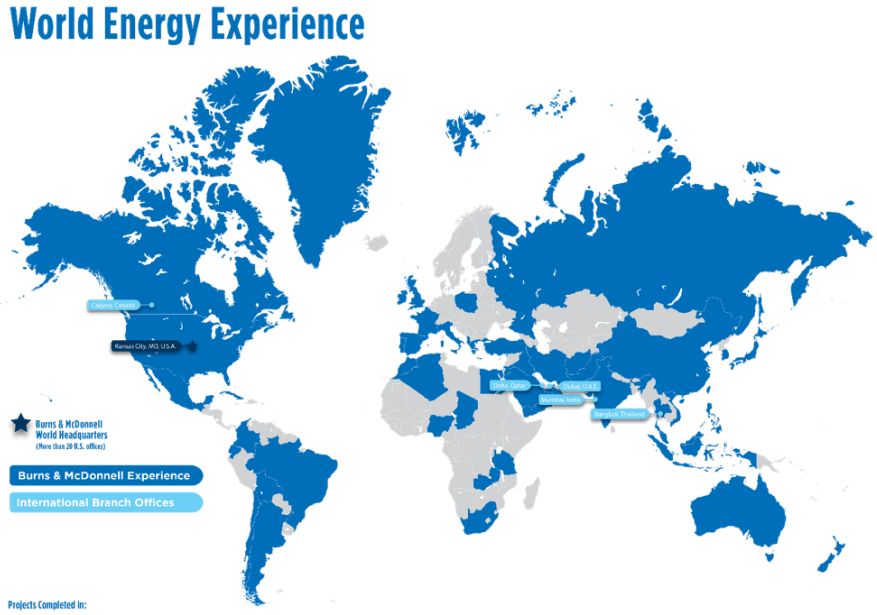
Bechtel's Nuclear, Security & Environmental global business unit leverages Bechtel's six decades in the nuclear industry to execute both commercial and government projects across the nuclear lifecycle. Bechtel's commercial nuclear power division is a global leader in the licensing, design, procurement, and construction of nuclear power plants, whether it is new build, plant completion or recovery, modifications to existing facilities, or advanced reactor technology development.

Location: Reston, VA
Founded: 1898
Principal/CEO: Barbara Rusinko
Major Customers: Non-disclosed
Federal Engagement: DOE, NRC, ARPA-E, DOD
Preferred Point of Contact: Muhammad Fahmy / mgfahmy@bechtel.com / 703-429-6859

www.bechtel.com

BURNS & MCDONNELL

Burns & McDonnell is a worldwide leader in engineering and construction with over 7,000 employee-owners in over 40 offices across the U.S. and throughout the world. At Burns & McDonnell, our engineers, architects, scientists and construction professionals do more than plan, design and implement. With a mission that remains unchanged since our founding in 1898 - Make Our Clients Successful - our team partners with you on the toughest challenges, constantly working to make the world an amazing place.



www.burnsmcd.com

Location: Kansas City, MO; Other worldwide offices
Founded: 1898
Principal/CEO: Ray Kowalik
Major Customers: X-energy, Ontario Power Generation, Ameren-Callaway, Evergy-Wolf Creek, APS-Palo Verde
Federal Engagement: DOE, INL, DOD, NRC, Other
Preferred Point of Contact: Glenn Neises / gneises@burnsmcd.com

BWX TECHNOLOGIES, INC.

BWXT has been involved in the nuclear industry since its beginning. As a federal contractor, BWXT provides nuclear components and fuel for the U.S. Navy's submarine and aircraft carrier fleet. Commercially, BWXT manufactures heavy components for CANDU reactors, provides services for the U.S. and Canadian nuclear markets, and provides engineering and design capabilities for advanced reactor technologies and fuel.

Location: Lynchburg, VA
Founded: 1857
Principal/CEO: Rex D. Geveden
Major Customers: Non-disclosed
Federal Engagement: DOE, NRC, Other
Preferred Point of Contact: Joshua L. Parker / jlparker2@bwxt.com / 434-316-7652

www.bwxt.com

CENTRUS TECHNICAL SOLUTIONS

Centrus Technical Solutions provides a one-stop shop for meeting the advanced nuclear industry's manufacturing and fuel design needs. Based on our experience with nuclear fuel, multi-physics modeling, engineering, design, advanced manufacturing, and project management, we can assist with the design and manufacture of critical components as well as the business planning, design, and licensing of facilities to produce new fuels. From design and engineering to NQA-1 compliant manufacturing, Centrus Technical Solutions is your trusted, full-service partner.

www.centrusenergy.com

Location: Oak Ridge, TN
Founded: 1998
Principal/CEO: Larry Cutlip (Vice President Field Operations)
Major Customers: Non-disclosed
Federal Engagement: DOE, GAIN, NRC, Oak Ridge National Laboratory
Preferred Point of Contact: Mark McClure / mccluremL@centrusenergy.com / 865-241-7095

CERAMIC TUBULAR PRODUCTS

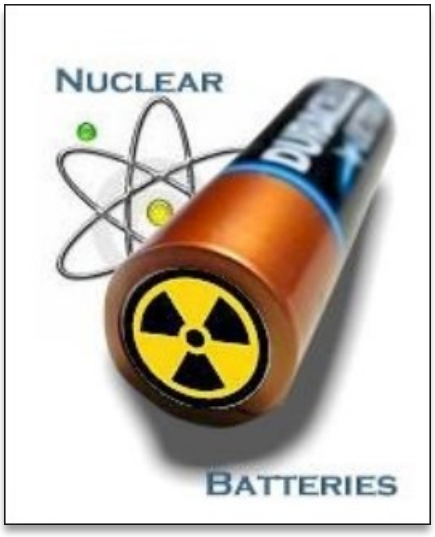
Ceramic Tubular Products develops and supplies very high temperature ceramic tubes and materials for existing and future nuclear and solar thermal applications.

Location: Lynchburg, VA
Founded: 2006
Principal/CEO: Jeffrey Halfinger
Major Customers: Non-disclosed
Federal Engagement: DOE, GAIN
Preferred Point of Contact: Jeffrey Halfinger / 424-239-1979

www.ctp-usa.com

COMPETITIVE ACCESS SYSTEMS, INC.

Competitive Access Systems (CAS), Inc. develops self-recharging nuclear battery technologies.



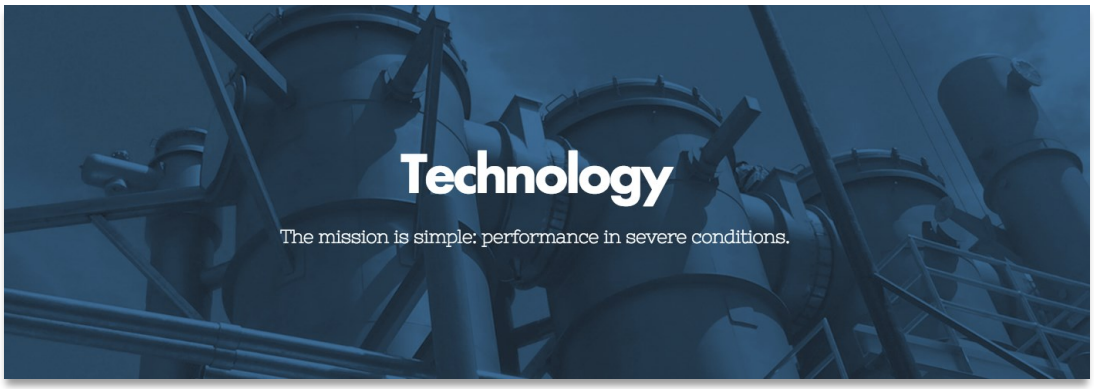
Location: Wylie, TX
Founded: 1996
Principal/CEO: Eric Delangis
Major Customers: Non-disclosed
Federal Engagement: Non-disclosed
Preferred Point of Contact: Linda Delangis / ldelangis@neukenergy.com

www.competitiveaccesssystems.com

COMPREX, LLC

FinRex® and ShimRex® Technologies

CompRex, LLC designs custom compact heat exchangers and compact heat exchange reactors for a wide range of chemical process applications where efficient heat transfer is critical.



www.comprex-llc.com

Location: De Pere, WI
Founded: 2014
Principal/CEO: Zhijun Jia
Major Customers: Non-disclosed
Federal Engagement: DOE, GAIN
Preferred Point of Contact: Zhijun Jia / Zhijun.jia@comprex-llc.com

CONCURRENT TECHNOLOGIES CORPORATION

Concurrent Technologies Corporation (CTC) is recognized as one of the world's premier nonprofit applied scientific research and development organizations for the creation and implementation of advanced manufacturing technologies. The skills and processes developed at CTC are leveraged by the Center for Advanced Nuclear Manufacturing (CANM) to benefit both the emerging SMR/AR industry and the legacy reactor fleet.

Location: Johnstown, PA
Founded: 1987
Principal/CEO: Edward J. Sheehan, Jr.
Major Customers: Non-disclosed
Federal Engagement: DOE, GAIN
Preferred Point of Contact: Robert Akans / canm@ctc.com

www.ctc.com

CURTISS-WRIGHT

Curtiss-Wright has supported the commercial nuclear power industry since its inception. We continue to make plants safer, more efficient, and more reliable across the globe. With more than 60 years of experience in power generation, we have significantly broadened our product offerings in the commercial nuclear power market over time - through acquisition, innovation, and organic growth. Our offerings include everything from commercial off-the-shelf seals to custom engineered control rod drive mechanisms, from analog instruments to FPGA-based Digital Control Systems.

Our Quality Assurance programs are maintained at the highest standards of excellence in support of rigorous industry requirements. We meet 10CFR50, Appendix B; ASME NQA-1; and ASME Sections III and XI. We possess ASME N, NPT, NR, NS, UV, and VR Certificates, including Material Organization (QSC-614) capabilities. Our quality programs meet the requirements of countries such as Canada, France, China, and Russia, and are NUPIC and NIAC audited.

www.cwnuclear.com

Location: Global
Founded: 1929
Principal/CEO: Lynn Bamford (CEO)
Major Customers: Exelon, Entergy, TVA, KHNP, OPG, Bruce Power, Bechtel
Federal Engagement: DOE, DOD, NRC
Preferred Point of Contact: Gary Wolski / gwolski@curtisswright.com

DC FABRICATORS, INC.

DC Fabricators manufactures heat exchange equipment for the power generation and defense industries. DCF specializes in small to medium size cylindrical and rectangular condensers and heat exchangers for industrial and cogeneration applications, geothermal power plants, large main station condensers (to over 500,000 sq.ft.), process heat exchangers with pressures over 2,000 psi, and nuclear power systems. DCF's backs up its manufacturing capabilities with complete engineering analysis and design capabilities that conform to ASME Code, TEMA Standards, HEI Standards for Steam Condensers, and International Codes and Standards.

www.dcfab.com

Location: Florence, NJ
Founded: 1993
Principal/CEO: Gary Butler
Major Customers: US Navy, General Dynamics, Bechtel, Huntington Ingalls, Talen Energy, NPPD, Southern Illinois Power, Eastman Chemical
Federal Engagement: DOE, DOD
Preferred Point of Contact: Derrick Phillips / dphillips@dcfab.com / 609-499-3000 ext. 225

DUBOSE NATIONAL ENERGY SERVICES

ADVANCED NUCLEAR | SUPPLIER

DuBose NATIONAL ENERGY SERVICES, INC.

DNES, an ASME certificate holder, since 1977 proudly offers quality products with exceptional (24/7/365) service. DNES carries one of the largest, most diversified inventories of nuclear qualified material in North America. DNES stocks sheet, plate, bar, pipe, fittings, flanges, structural shapes, tubing, fasteners, weld filler metal and Unistrut® metal framing products. DNES supports common carbon and alloy steel to highly corrosive-resistant stainless; nickel alloys to aluminum, copper and bronze. DNES also offers Razor Ribbon® Barbed Tape products for protecting physical assets, inventory and infrastructure of nuclear facilities. In addition, DNES offers many value-added services from machining, fabricating, sawing, burning, cleaning, blasting, painting, heat treating, in-house testing (including NDE), and reverse engineering. DNES products and services are offered under a comprehensive quality program based on ASME Section III, NCA/ WA-3800 and 4000 and accreditation through our approved 'N-type' certificates (NA, NPT and NS); 10CFR50 Appendix B; ASME NQA-1; ANSI N45.2; CSA N299.2/3; & MIL-I-45208A. DNES is also accredited under AISC and AWS, as well as ASME Section VIII (Pressure Vessels, Division 1 – U & R Stamps). DNES is NUPIC and NIAC Audited.

NUCLEAR INDUSTRY ASSESSMENT CORPORATION

NPT NA NS U

AISC CERTIFIED FABRICATOR

CWF CERTIFIED WELDING FABRICATOR

www.dubosenes.com

Location: Clinton, NC
Founded: 1990
Principal/CEO: Richard Rogers (President), Beau Laslo (Director of Sales), Doug Vickery (Director of Quality)
Major Customers: USA: All nuclear utilities, DOE, DOD, National Labs and ~300 OEM's/ Fabricators/EPC's who support USA nuclear programs. Canada: All nuclear utilities, National Labs and ~75 Canadian OEM's/Fabricators/EPC's who support Canada's nuclear programs. Worldwide: Several Utilities and OEM's/Fabricators/EPC's nuclear programs.
Federal Engagement: DOE, DOD
Preferred Point of Contact: Beau Laslo / beau.laslo@dubosenes.com / 910-590-2151

ED FAGAN INC.

Distributor and manufacturer of Controlled Expansion, Magnetic and Refractory Metals and Alloys. Ed Fagan Inc. has facilities in Franklin Lakes, NJ and Los Alamitos, Ca.

If you need specialty metals or special purpose alloys for Aerospace/ Aviation, Defense, Electronics, Ceramic, Heat Treating, Magnetic, Medical, Lighting, Optical, Telecommunications, or other high-technology, industrial application, call Ed Fagan Inc.

EFI has supplied specialty metals, alloys, and hard-to-locate materials to these markets since 1965. We have a large comprehensive inventory of Controlled Expansion Alloys, Electrical/Electronic Grade Nickel; as well as Soft Magnetic Alloys, and Refractory Metals and Alloys. We stock the highest quality materials available in forms such as: Bar, Rod, Sheet, Plate, Strip, and Wire… from the highest quality mills such as VDM Metals GmbH and Carpenter Technology Corp. And, we stock these materials in many gauges, widths/lengths, and conditions for immediate delivery.

www.edfagan.com

Location: Franklin Lakes, NJ
Founded: 1965
Principal/CEO: Ed Fagan, President
Major Customers: Argonne National Laboratories, Sandia National Laboratories, Lawrence Livermore National Laboratories, General Electric
Federal Engagement: DOE, ARPA-E, NRC
Preferred Point of Contact: Richard Manberg / richard@edfagan.com / 201-891-4003
Shant Simonian / shant@edfagan.com / 562-431-2568

ENERCON

ENERCON

Excellence—Every project. Every day.

ENERCON is an architectural engineering, environmental, technical, and management services firm providing a broad range of professional services to private, public, and government sector clients both in the United States and internationally. Since 2002, ENERCON has been a leader in supporting deployment of new nuclear power plants world-wide.

ENERCON has supported clients in performing new nuclear plant site selection studies, evaluating alternative nuclear technologies, and developing design certification applications, license applications, and environmental reports. Our long list of satisfied clients has been built on our solid reputation as a premier provider of high quality, cost effective services. Our clients know that we continuously strive to be a firm that is known for our integrity, innovation, excellence, and responsiveness.

Location: Kennesaw, GA
Founded: 1983
Principal/CEO: John Richardson
Major Customers: Non-disclosed
Federal Engagement: Non-disclosed
Preferred Point of Contact: John Durham / jdurham@enercon.com / 770-590-2176

www.enercon.com

ENGINEERING MECHANICS CORPORATION OF COLUMBUS

Engineering Mechanics Corporation of Columbus (Emc^2) is an employee-owned engineering research and development consulting company focused on materials, structural integrity and reliability of complex systems. We provide high quality engineering services and products that are innovative and responsive to our clients' schedule and budgetary requirements. Emc^2 nurtures creativity, continually invests in staff development and new technologies, and collaborates with our clients to assemble the best combination of experts to solve critical problems for the commercial and governmental communities we serve. We have extensive experience in high temperature computational damage and fracture modeling along with extensive test facilities. We helped develop the NRC's xLPR probabilistic leak before break code.

Since our founding in the last century, Emc^2 has always taken pride in our leadership role on various Codes and Standards setting committees. We remain committed to our mission to provide experimental, computational, reliability and analytical solutions to client needs while also supporting societal goals of insuring safe operations of systems of all sizes and complexity.

Engineering Mechanics Corporation of Columbus Laboratory Facilities

Engineering Mechanics Corporation of Columbus At Sunset

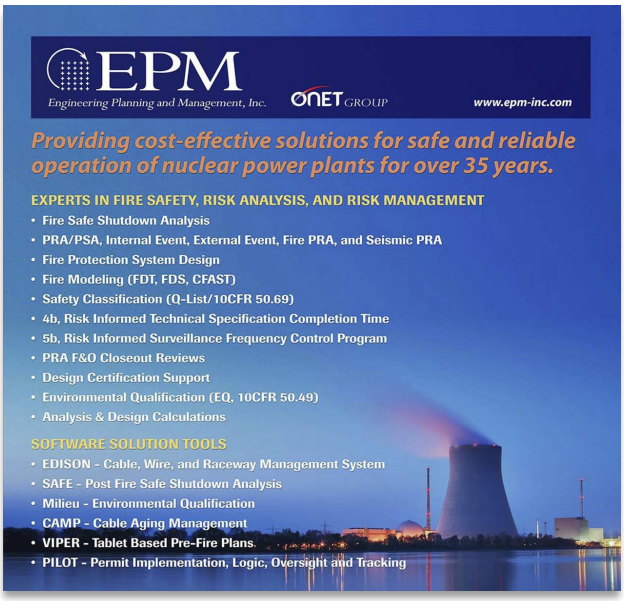
Location: Columbus, OH
www.emc-sq.com
Founded: 1998
Principal/CEO: CEO - Gery Wilkowski / Principal - F.W. Brust
Major Customers: Energy Industry (US NRC, Department of Energy, US Navy Nuclear, National Aeronautics and Space Administration, Department of Transportation, Heavy Industry, Medical Industry, International Nuclear Regulators.
Federal Engagement: DOD, Navy, NASA
Preferred Point of Contact: Frederick (Bud) Brust / bbrust@emc-sq.com / 614-459-3200

ENGINEERING PLANNING and MANAGEMENT

ADVANCED NUCLEAR | SUPPLIER

EPM an ONET company
Engineering Planning and Management, Inc.

EPM is a multi-discipline, ASME NQA-1:2015 and ISO 9001:2015 compliant, engineering company specializing in fire protection and fire modeling, probabilistic risk assessment (PRA), safe shutdown / electrical separation analysis, chemical process safety, and software development. Our cross-functional teams allow EPM to provide integrated specialty engineering and software solutions to assist our U.S. and international customers with regulatory compliance, design certification, risk management, and process efficiency at their facilities. We have built a reputation as a well-respected engineering services and software provider to U.S. and international customers for over 35 years.

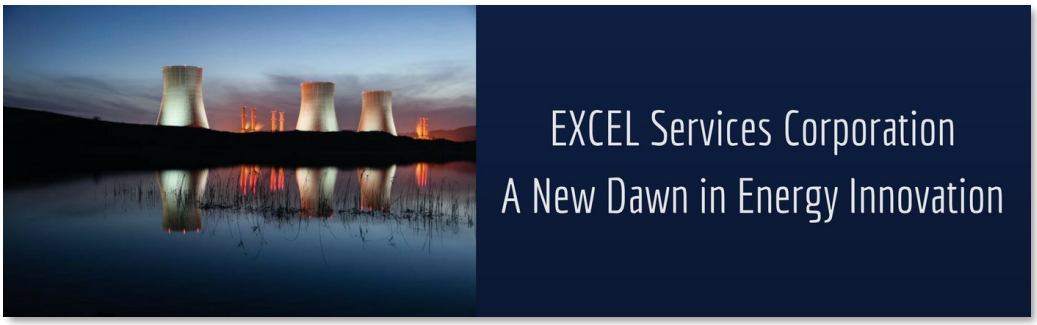


www.epm-inc.com

Location: Framingham, MA
Founded: March, 1980
Principal/CEO: Robert Kalantari
Major Customers: Non-disclosed
Federal Engagement: DOE, NRC
Preferred Point of Contact: Alan Jelalian / ahj@epm-inc.com / 508-532-7131

EXCEL SERVICES CORPORATION

EXCEL Services Corporation (EXCEL) has vast domestic and international technical, licensing, and regulatory experience, working with regulatory bodies including the U.S. NRC, IAEA, STUK, Canadian Nuclear Safety Commission, and many others. EXCEL has worked with numerous nuclear plant designers and operators to develop and implement technical, licensing, and regulatory strategies for all phases of the nuclear plant life cycle, from design certification, initial licensing, license renewal, to decommissioning. EXCEL combines a broad and deep knowledge of the industry with world-class technical expertise, problem-solving consultants, and cost saving mechanisms to create high impact solutions to solve difficult challenges faced by energy production and other critical infrastructure clients.



www.excelservices.com

Location: Rockville, MD
Founded: 1985
Principal/CEO: Donald R. Hoffman
Major Customers: EXCEL has supported all the US nuclear utilities and over 27 countries worldwide.
Federal Engagement: DOE, NRC
Preferred Point of Contact: Jim Andersen / jim.andersen@excelservices.com / 301-984-4400

EXYN TECHNOLOGIES

Exyn Technologies is pioneering autonomous aerial robot systems for complex, GPS-denied environments. The company's full-stack solution enables flexible deployment of single or multi-robots that can intelligently navigate and dynamically adapt to complex environments in real-time. Exyn's autonomous robotic solution can integrate specialized sensors (temperature, radiological, IR, visual camera) to record data in dangerous or conventionally inaccessible locations. That data will be placed / visualized / georeferenced in 3D space onto of the survey grade point cloud for easy consumption and analytics.

www.exyn.com

Location: Philadelphia, PA
Founded: 2014
Principal/CEO: Nader Elm
Major Customers: Mining Space: Dundee Precious Metals, Vale, etc.
Nuclear: Demonstration of Technology with EPRI
Federal Engagement: Other
Preferred Point of Contact: Harry Erhardt / herhardt@exyntechnologies.com

F&J SPECIALTY PRODUCTS, INC.

ISO9001:2015 certified manufacturer of traditional and microprocessor controlled air sampling and airflow calibration instruments, air sampling accessories and consumables. Products include portable and fixed-station low volume and high volume air samplers, PAS, tritium and C-14 systems. Consumables include charcoal and silver zeolite radioiodine collection cartridges and particulate filter media.

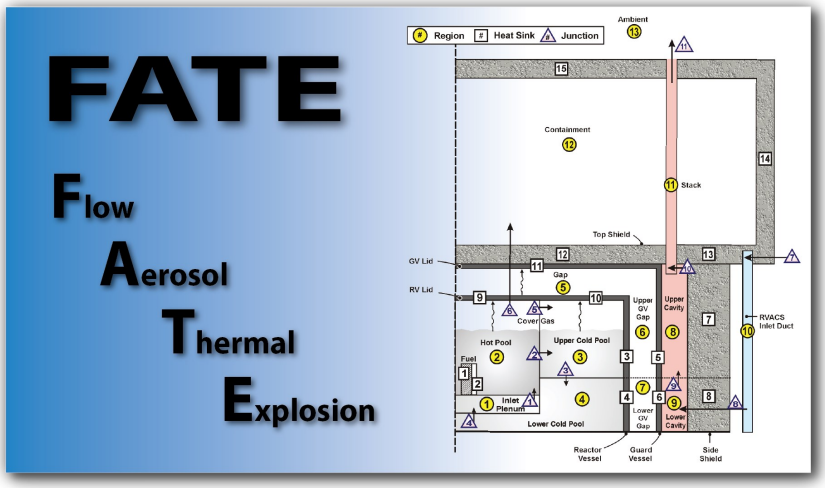
Location: Ocala, FL
Founded: 1979
Principal/CEO: Frank M. Gavila
Major Customers: Non-disclosed
Federal Engagement: DOE, EPA, Other
Preferred Point of Contact: fandj@fjspecialty.com / 352-680-1177

www.fjspecialty.com

FAUSKE & ASSOCIATES, LLC

FAUSKE & ASSOCIATES, LLC
WORLD LEADER IN NUCLEAR AND CHEMICAL PROCESS SAFETY

FAI specializes in modeling and analyzing both power and non-power nuclear facilities, including light water and liquid metal cooled reactors (LMRs), spent fuel, legacy waste processing, and storage facilities. FAI developed FATE, a facility and process modeling code originally created to support design and safety analyses of spent fuel, tank waste, vitrification, and special materials at DOE's Hanford site. Recently, under a GAIN voucher, FATE was coupled with a LMR accident analysis code to provide mechanistic source term analysis capability for licensing purposes.



Location: Burr Ridge, IL
Founded: 1980
Principal/CEO: John Fasnacht
Major Customers: Westinghouse, Kairos, Sellafield, Hanford, Korea Atomic Research Institute (KAERI)
Federal Engagement: DOE, GAIN, NRC
Preferred Point of Contact: Jim Burelbach / burelbach@fauske.com

www.fauske.com

FISHER CONTROLS

Fisher valve and instrument technologies are born from Emerson's passion to increase your process safety and efficiency, by defining the industry with more than 140 years of trusted innovations and forging the future of flow control solutions. We know the consequences of process failure are great, that's why we have an unwavering commitment to standards and processes that ensure innovative and reliable product designs. Many years from now, as the Fisher™ brand is put onto products, users will continue to know it stands for integrity.

www.fisher.com

Location: Marshalltown, IA
Founded: 1880
Principal/CEO: Kevin G. Meyer (Principal), Lal Karsanbhai (CEO)
Major Customers: All sanctioned nuclear utilities across the globe
Federal Engagement: NRC
Preferred Point of Contact: Michael Hagen / Michael.hagen@emerson.com / 641-754-3355

FISONIC ENERGY SOLUTIONS - POWER SYSTEMS DIVISION

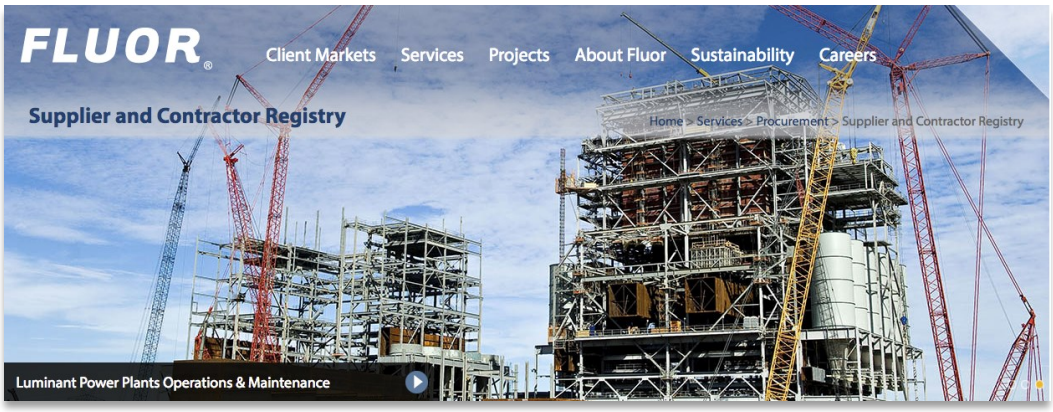
Fisonic Energy Solutions designs pumping systems for power plants that require only heat to operate (no electricity), and use waste heat as a power source where possible.

Location: Waltham, MA
Founded: 2016
Principal/CEO: Ed Pheil (CTO)
Major Customers: Non-disclosed
Federal Engagement: Other
Preferred Point of Contact: Ed Pheil / ed.pheil@fisonic.us

www.fisonicsolutions.com

FLUOR

Fluor is one of the world's largest publicly-traded engineering, procurement, fabrication, construction (EPFC) and maintenance companies, offering integrated solutions for clients' projects. For the past 70 years, Fluor has executed some of the most complex and challenging projects in the nuclear industry.



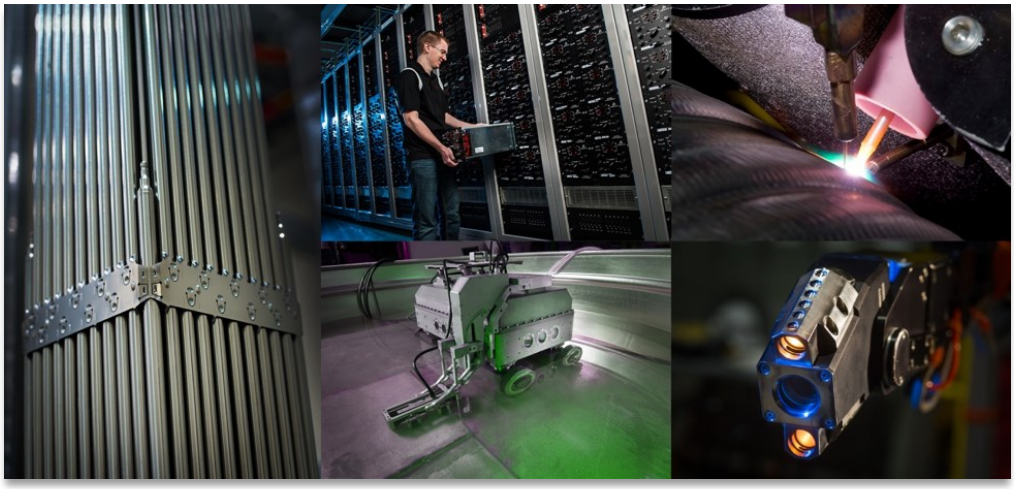
Location: Global
Founded: 2012
Principal/CEO: David Seaton
Major Customers: Non-disclosed
Federal Engagement: DOE, NRC, Other
Preferred Point of Contact: Brad Porlier / brad.porlier@fluor.com

www.fluor.com

FRAMATOME

framatome

Framatome is a major international player in the nuclear energy market recognized for its innovative solutions and value-added technologies for designing, building, maintaining, and advancing the global nuclear fleet. The company designs, manufactures, and installs components, fuel and instrumentation and control systems for nuclear power plants and offers a full range of reactor services. Framatome is innovating to design the reactors of tomorrow. Our activities include reactor design, systems engineering, SMR fuel development, and industry counsel to help progress licensing and commercialization of advanced reactors in the United States.

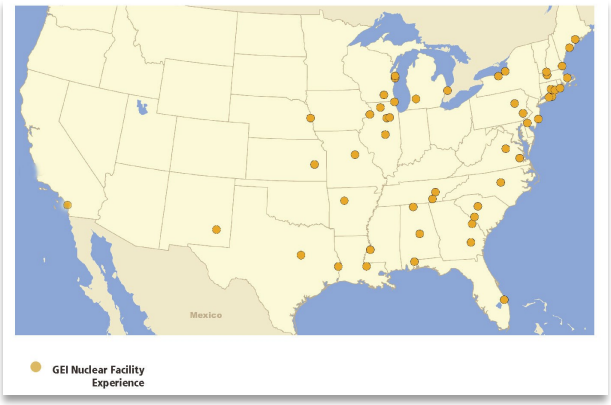


Location: Nationwide
Founded: 1989
Principal/CEO: Gary Mignogna
Major Customers: Non-disclosed
Federal Engagement: DOE, GAIN, ARPA-E, NRC, Other
Preferred Point of Contact: Darryl Gordon / Darryl.gordon@framatome.com / 434-832-5199

www.framatome.com

GEI CONSULTANTS, INC.

Our multi-disciplined team of engineers and scientists deliver integrated geotechnical, environmental, water resources, and ecological engineering solutions to diverse clientele nationwide. GEI recognizes the need to provide safe, clean, secure, base load electric power to influence our environment and has made a commitment to provide resources to support this need. GEI provides services with a focus on client success by integrating experienced project managers into our clients' team. Our services for nuclear facilities include: Site Characterization/Selection; Seismic Stability and Liquefaction Analysis; Foundation Investigation; Design for Static and Seismic Loading; Vibration Analysis; Excavation Support; Geohydrologic and Hydrologic; Licensing Support; Embankment Design and Rehabilitation; Preparation of Plans and Specifications; Field Instrumentation Installation and Monitoring; Construction Observation and Consultation; Environmental and Ecological Services; and Decommissioning. GEI has had a Nuclear Quality Assurance Manual since 1972 and we provide all our services under a client-audited Quality Assurance Program (QAP) that meets the requirements of 10 CFR Part 50 Appendix B, ASME NQA-1-1994 and ANSI N45.2- 1977. We have firmly established a reputation amongst the industry for achieving excellent results, inspired problem-solving, and outstanding client satisfaction.



www.geiconsultants.com

Location: Woburn, MA
Founded: 1970
Principal/CEO: Ron Palmieri
Major Customers: Holtec International, TVA, Entergy, Exelon, Bechtel, and Orano
Federal Engagement: DOE, NRC, USACE, EPA, DOJ, TVA
Preferred Point of Contact: Chad R. Conti / cconti@geiconsultants.com
Leslie A. Lombardo / llombardo@geiconsultants.com

GSE PERFORMANCE SOLUTIONS, INC.

GSE SYSTEMS®
Your performance improvement partner

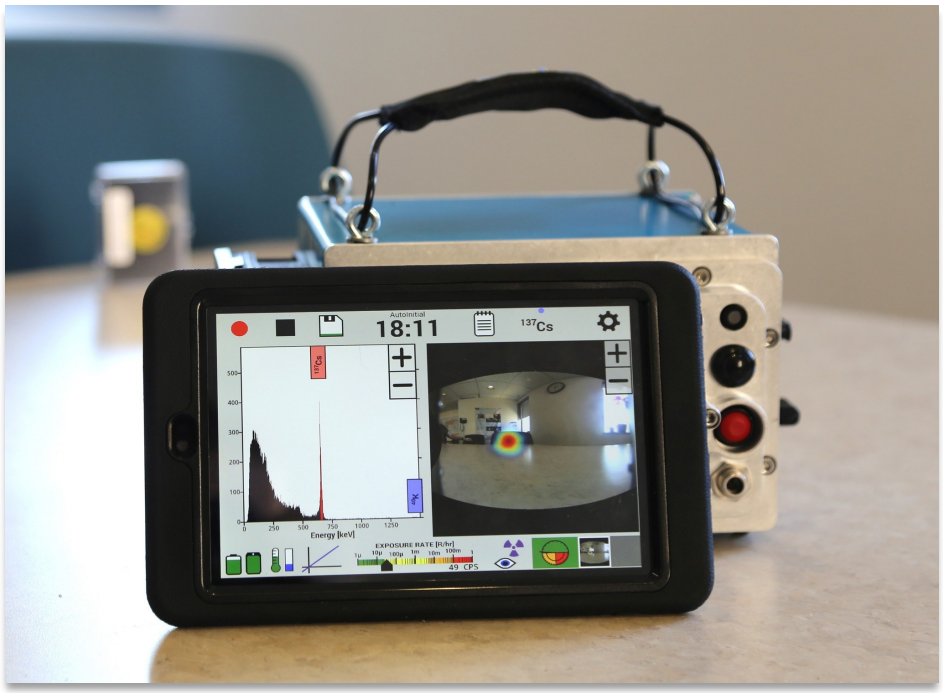
GSE is the world leader in simulation systems and solutions for the nuclear power industry. GSE's technology allows the end user to conduct engineering and design studies, conduct "what if" analyses and train personnel to exacting standards. GSE's technology is critical for customers to improve load factors, reduce operational risk and lower operating costs.

Location: Sykesville, MD
Founded: 1994
Principal/CEO: Kyle Loudermilk
Major Customers: Non-disclosed
Federal Engagement: DOE, GAIN, ARPA-E, NRC
Preferred Point of Contact: Jay Umholtz / jay.umholtz@gses.com

www.gses.com

H3D, INC.

H3D offers the world's highest-performance imaging spectrometers. Quickly identifying and localizing gamma-ray sources with a single measurement, H3D is revolutionizing how measurements are performed. H3D detectors are used in over half of U.S. nuclear power plants.

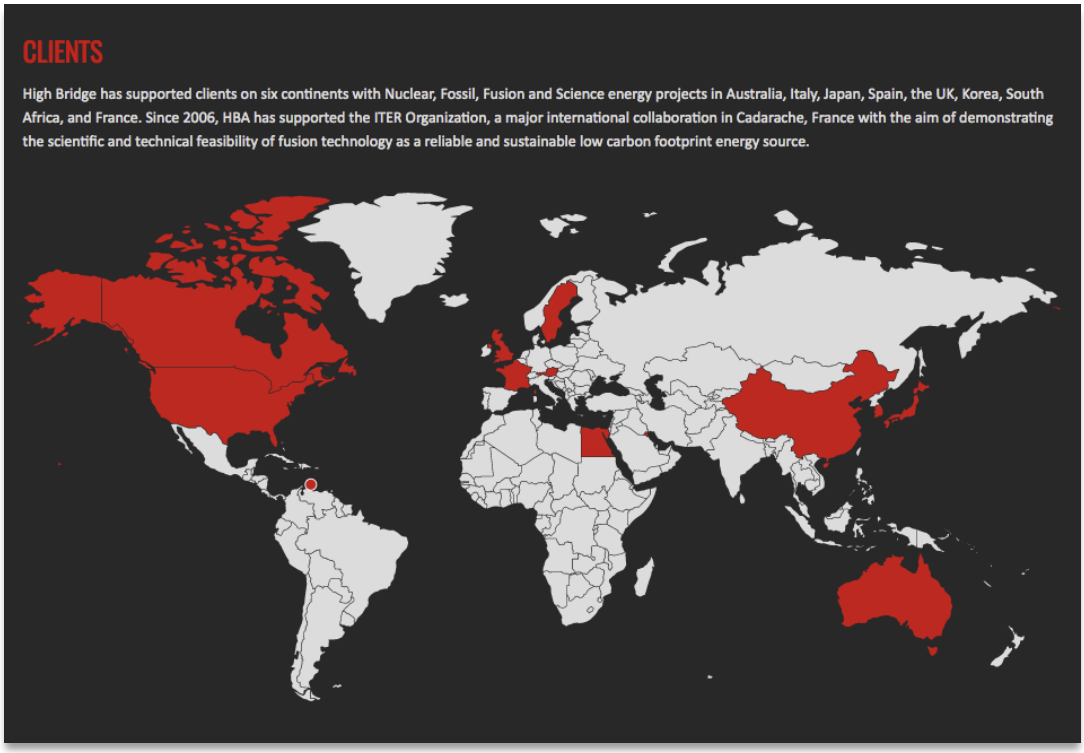


www.h3dgamma.com

Location: Ann Arbor, MI
Founded: Non-disclosed
Principal/CEO: Willy Kaye
Major Customers: Non-disclosed
Federal Engagement: DOE
Preferred Point of Contact: Andy Boucher / andy@h3dgamma.com / 734-661-6416

HIGH BRIDGE ENERGY DEVELOPMENT

High Bridge Energy Development conceptualizes and executes projects for advanced reactors and SMRs.



www.hba-inc.com

Location: Nationwide
Founded: 2011
Principal/CEO: Steve R. Maehr
Major Customers: Non-disclosed
Federal Engagement: DOE, GAIN, ARPA-E, NRC
Preferred Point of Contact: Philip Moor / Philip.moor@hba-inc.com / 770-729-8755

HIGH TEMPERATURE SYSTEM DESIGNS, LLC

High Temperature Systems Designs (HTSD) are an Engineering and Design company with over Seventy years of combined experience. Our team is made up of Daniel Barth, Business Development Manager/Owner, William Nagle, Chief Technical Officer and Danielle Barth, Research Analyst.

HTSD developed and manufactured specialized pumping systems for high temperature and hazardous material applications. Our understanding of designing and manufacturing of such critical equipment comes from working for and with such companies as Rheinhutte Pumps, Nagle Pumps, Friatec Valves, Ensival-Moret Pumps, Sandia National Labs, Rocketdyne, Nexant Bechtel, Oakridge National Labs and many other research facilities and Universities.

HTSD designed, constructed and commissioned systems at Sandia National Labs, Shell Global Solutions research Facility in Houston, TX, Plataforma Solar de Almera in Spain, ENEA in Italy and many labs scales systems at our universities.

High Temperature System Designs, LLC

Dan Barth is Business Development Manager of High Temperature System Designs, LLC. He has over 40 years of designing, engineering and manufacturing of custom high temperature molten salt and molten sodium pumping systems for niche markets such as solar, nuclear power generation, industrial applications using high temperature fluids to heat or cool their processes and many applications to manufacture metal elements such as magnesium and titanium. He has worked and lectured at many National Labs and universities on high temperature applications and custom manufactured parts from high alloy and ceramics materials.

William Nagle is Chief Technical Officer of High Temperature System Designs LLC. He has 24 years of experience designing and qualifying custom high temperature process equipment in the conventional, solar, and nuclear energy sectors. He specializes in fluid handling, conditioning, and instrumentation in extreme environments, and has managed engineering groups at universities and national energy labs. He has a Master of Science in Mechanical Engineering from Stanford University, and a MBA from University of Chicago.

Tel: 219-365-7669 Cell 727-776-7952 Email: danbarth001@gmail.com

www.hightemperaturesystemdesigns.com

Location: St. John, Indiana
Founded: 2015
Principal/CEO: Daniel Barth
Major Customers: Sandia National Labs, Oak Ridge National Labs, National Renewable Energy Lab, Argonne National Labs, Shell Oil. TerraPower, ThorCon, Flibe Energy, Hayward Tyler Inc., Powdermet, Nagle Pumps Inc., Rheinhutte Pumps
Federal Engagement: DOE, ARPA-E
Preferred Point of Contact: Daniel Barth / danbarth001@gmail.com /
Direct 219-365-7669, Cell 727-776--7952

INFORMATION SYSTEMS LABORATORIES

ADVANCED NUCLEAR | SUPPLIER

INFORMATION SYSTEMS LABORATORIES, INC.

Information Systems Laboratories, Inc. (ISL) specializes in the areas of energy independence, advanced nuclear applications, space exploration, undersea technologies, surveillance and tracking, cybersecurity, and advanced radar systems. In the Energy Sector, ISL provides comprehensive areas of support to the U.S. government ranging from safety analysis and assessment of complex engineering systems to the development of regulatory structures and evaluation procedures.

ISL specializes in nuclear analysis, code development, and regulatory assistance. Typical nuclear analysis performed by ISL focuses on the following areas: thermal-hydraulics, fuel-mechanical, point and 3D neutron kinetics, nuclear plant performance and accident analysis, operational transient analysis, training simulator benchmarking, spent nuclear fuel cooling analysis, containment analysis, hydrodynamic force calculations, control system studies, and safety analysis.

ISL staff are experts in the development and use of system codes, including neutronic and control system models, with hundreds of years of combined experience. ISL currently supports the maintenance and development of computer software and analysis systems for the U.S. Nuclear Regulatory Commission (NRC) and U.S. Department of Energy (DOE)-Naval Reactors, including RELAP5, RADTRAD, TRACE, and PARCS.

ISL develops software applications and database systems for all phases of nuclear waste processing, disposal, and storage. ISL's expertise in cradle-to-grave management of nuclear waste data processing includes retrieval, characterization, certification, shipment, and disposal operations.

ISL staff are experts in risk management and system safety, including programmatic risk management, enterprise risk management (ERM), risk-informed decision making (RIDM), continuous risk management (CRM), accident precursor analysis (APA), and probabilistic risk assessment (PRA).

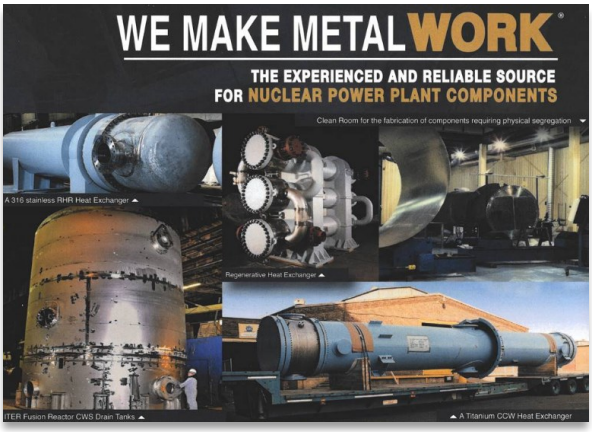
www.islinc.com

Location: San Diego, CA
Founded: 1982
Principal/CEO: Dr. Joseph Guerci, Ph.D.
Major Customers: U.S. NRC, U.S. DOE
Federal Engagement: DOE. NRC, NASDA, DARPA, U.S. DOT, Other
Preferred Point of Contact: Colleen Armoruso / camoruso@islinc.com / 703-448-1116

JOSEPH OAT CORPORATION

Joseph Oat is a world renowned OEM designer and manufacturer of fabricated ASME Section VIII and ASME Section III / NQA-1 nuclear safety-related heat exchangers, pressure vessels, tanks, canisters/casks, and other products for the Nuclear Power and Radioactive Waste Processing Industries.

Joseph Oat's range of products is quite extensive and our successful nuclear experience is unmatched in the industry. Joseph Oat excels in the supply critical heat exchangers such as regenerative & non-regenerative, residual heat removal (RHR), spent fuel pool coolers, emergency diesel generator (EDG) coolers, lube oil coolers, containment spray, letdown, SG blowdown, and large component cooling water (CCW) heat exchangers. Other product offerings include condensate tanks, air receiver tanks, accumulator vessels, liquid control tanks, surge tanks, containment air coolers, pulsation dampeners, suction stabilizers, oil tanks, fuel tanks, strainers, flow elements - orifice plate & venturi type, flow meters, structural weldments, spent fuel/rad-waste canisters/casks, and other specialty items to nuclear power utilities/plants, NSSS designers, nuclear A&E/EPC firms, the DOE national laboratories/ repositories, and DOD weapons plants.



www.josephoat.com

Location: Camden, NJ
Founded: January 1788
Principal/CEO: Ron Kaplan
Major Customers: DOE (National Laboratories, Repositories, Universities, etc.), GE-Hitachi, Orano, US Nuclear Power Utilities, Westinghouse
Federal Engagement: DOE, GAIN, NRC, Other, DOD
Preferred Point of Contact: John McDonald / j.mcdonald@josephoat.com / 856-371-0009

LIGHTBRIDGE CORPORATION

Lightbridge develops next generation fuel technology.

Location: Reston, VA
Founded: 2006
Principal/CEO: Seth Grae
Major Customers: Non-disclosed
Federal Engagement: DOE, NRC
Preferred Point of Contact: Seth Grae / 571-730-1200

ltbridge.com

LPI, INC.

LPI, Inc. was established in New York City in 1885 to provide services to a fast evolving industrial nation. We began by doing chemical assays for a variety of industries. In the 1950s, a metallurgical laboratory, metallurgical services, and failure analyses were added. Over time, this expanded to include stress analysis, fracture mechanics, and other services that made us a full-service consulting engineering firm.

LPI, Inc. has continually expanded our staff and capabilities to enable a broad range of expertise. In turn, our clients trust us to solve problems that range from challenging to extraordinary. With over a century of service, LPI, Inc. has a long held, outstanding, and global reputation for engineering excellence and cost effective problem solving.

Whether it involves the analysis of the New York World Trade Center disaster, the breakup of an oil tanker in the North Atlantic, the weakening of a stadium roof structure, or the cracking of a critical component at a nuclear power facility, every industrial sector today faces a growing need to continue operating existing structures and current equipment in a safe, reliable, and cost effective manner. Our business mission is to assess and deliver the most cost effective solutions to our clients' engineering problems. To accomplish this, we've developed a multi-disciplined staff of technical specialists with expertise in many specialized industrial sectors.

www.lpiny.com

Location: New York, NY
Founded: 1885
Principal/CEO: Robert Vecchio
Major Customers: Non-disclosed
Federal Engagement: DOE, ARPA-E, GAIN, NRC
Preferred Point of Contact: Jennifer Labeaf / jlabeaf@lpiny.com / 509-420-7684

MAIDANA RESEARCH

MAIDANA RESEARCH
Engineering Design and Scientific Research

MAIDANA RESEARCH is a small business dedicated to engineering design and scientific research. Its main set of activities rely on computer aided design, engineering and manufacturing (CAD/CAE/CAM), basic and applied research in the engineering and physical sciences, and consulting in topics related to industries and advanced technologies deemed critical to national security and to long term economic development including, but not limited to, aerospace, satellites, nuclear technologies, defense-related industries, and advanced energy systems.

We provide specialized services in the research, design and development of liquid metal and molten salt electromagnetic pumps for nuclear, space and industrial applications including software development, rapid prototyping, advanced and hybrid manufacturing, test loops, instrumentation and control, and digital monitoring systems for active flow control and machine protection.

- Computer Aided Design (CAD)
- Computer Aided Engineering (CAE)
- Computer Aided Manufacturing (CAM)
- Rapid Prototyping
- Reverse Engineering
- Instrumentation and Control
- Modeling and Simulations
- Multi-Physics Analysis
- Computational Physics
- Software Engineering
- Digital Prototyping

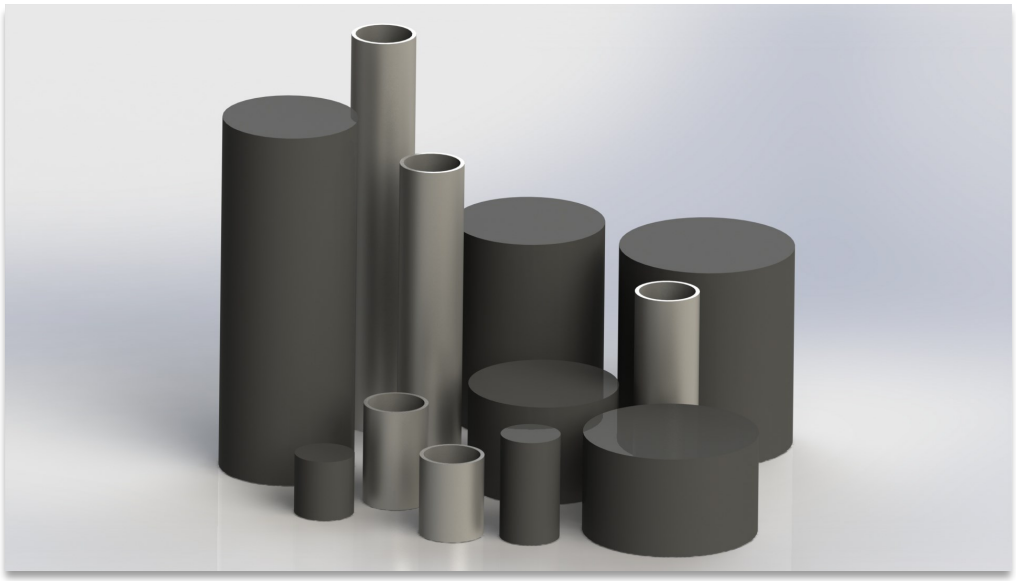
www.maidana-research.com

Location: USA (ID) and Thailand
Founded: 2015
Principal/CEO: Dr. Carlos O. Maidana
Major Customers: Non-disclosed
Federal Engagement: DOE, GAIN, NASA, DoD, Other
Preferred Point of Contact: management@maidana-research.com

MILLENNITEK LLC

MILLENNITEK LLC
AN ADVANCED MATERIALS MANUFACTURER

Millennitek manufactures neutron absorbers from high-temperature materials under our NQA-1 quality program. We also develop materials and have advanced manufacturing methods to accelerate time to market.



Location: Knoxville, TN
Founded: 2010
Principal/CEO: Steve Getley
Major Customers: Westinghouse, PNNL
Federal Engagement: NASA
Preferred Point of Contact: Steve Getley / steve.getley@millennitek.com / 865-771-2553

www.millennitek.com

NUTHERM INTERNATIONAL, INC.

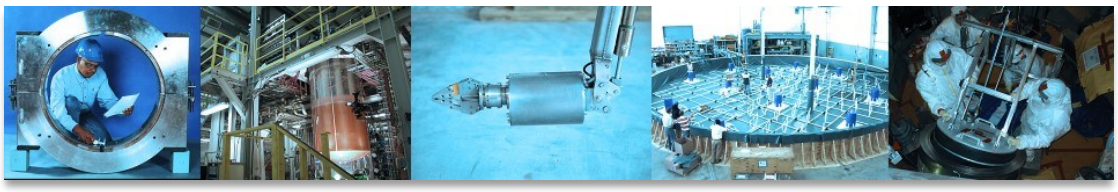
Nutherm is a small business concern serving the DOE and commercial nuclear power industry since 1979. We specialize in the design, manufacture, qualification, and commercial-grade dedication of systems and components for electrical power, control, and instrumentation. Nutherm's in-house lab features electrical performance, accelerated thermal aging, HELB, LOCA, and seismic testing along with numerous specialized testing devices. Nutherm maintains a Quality Assurance Program to support its products and services for safety-class and safety-significant applications. The Nutherm audited Quality Assurance Program meets the requirement of ASME NQA-1, 10 CFR 50 Appendix B, 10 CFR Part 21, ANSI/ASME Standard N45.2, and DOE Order 414.1D.

www.nutherm.com

Location: Mt. Vernon, IL
Founded: 1976
Principal/CEO: Wade Bowlin
Major Customers: Los Alamos National Laboratory, Oak Ridge National Laboratory, Savannah River Site, Hanford Site
Federal Engagement: DOE, NRC
Preferred Point of Contact: sales@nutherm.com

NUVISION ENGINEERING

NuVision Engineering is an engineering and technology services company specializing in nuclear applications. We provide technically advanced engineering solutions and services for governments and businesses worldwide. We also design and deploy rad-hardened robotic manipulators for use in radioactive environments, and advanced process systems to manage radioactive waste. Our customers include the U.S. and international governments, utility companies, and medical research facilities. Our experienced staff and portfolio enable us to provide solutions to complex problems safely, quickly, and cost effectively. NuVision was founded in 1971 and is headquartered in Pittsburgh, Pennsylvania, with major operational facilities near Charlotte, North Carolina.



nuvisioneng.com

Location: Pittsburgh, PA
Founded: 1971
Principal/CEO: Erich Keszler / ekeszler@nuvisioneng.com
Major Customers: U.S. and international governments, utility companies, and medical research facilities
Federal Engagement: DOE, GAIN, ARPA-E, NRC, U.S. and International Governments
Preferred Point of Contact: Martin Williams / williams@nuvisioneng.com
Michael Frankle / mfrankle@nuvisioneng.com

POWER SYSTEM SENTINEL TECHNOLOGIES, LLC

PSStech
Guarding the Grid

Born out of a need to protect the nuclear industry, PSStech was founded to provide nuclear generating stations with open phase protection. PSStech provides design, manufacturing, and engineering services to the electric power industry and large industrial and commercial customers.

Location: Warrior, AL
www.psstech.com
Founded: 2014
Principal/CEO: Greg Franklin
Major Customers: U.S. Nuclear Power Plants, Electric Power Utilities, Large Industrial & Commercial Facilities
Federal Engagement: DOE, GAIN, NRC
Preferred Point of Contact: Chris Melhorn / cmelhorn@psstech.com / 865-456-0602

PRECISION CUSTOM COMPONENTS, LLC

PCC has been manufacturing large hydro, fossil, and nuclear power generation equipment in our York, PA location for over 140 years. We have fabricated NSSS vessels and other equipment for the nuclear and process industries including Westinghouse, GE, Framatome, ExxonMobil, Dow DuPont, U.S. Navy, DOE, National Labs, electric utilities, and others. Our nuclear manufacturing history dates back to the industry's origins with Shippingport-1 and continues to this day with SMR, Gen III+ and Gen IV reactor hardware and design support.

www.pcc-york.com

Location: York, PA
Founded: 1876
Principal/CEO: Gary Butler
Major Customers: Westinghouse, Framatome, NuScale, BWXT, US Navy, Bechtel, General Dynamics, Northrop Grumman, Dow DuPont, ExxonMobil, US DOE, and National Laboratories
Federal Engagement: DOE, NRC, DOD, NASA
Preferred Point of Contact: Jim Stouch / jstouch@pcc-york.com / 717-434-1802

PREMIER TECHNOLOGY

Located in Blackfoot, Idaho, just 30 minutes from the Idaho National Laboratory, Premier Technology, Inc. (Premier) is a recognized leader in nuclear fabrication. Premier has supported the nuclear industry for more than two decades, completing over 1,000 projects under nuclear quality assurance programs such as ASME NQA-1 and ASME Section III.

Premier has successfully performed over $250 million in work under nuclear quality assurance programs in the last decade with single projects as large as $80M. This includes prototype fabrication, first-of-a-kind builds, and full production runs.

Premier is committed to supporting the development and deployment of advanced reactors. Contact us to discuss your needs for manufacturability reviews and prototyping efforts or to discuss long-term partnerships for manufacturing of reactors.

www.ptius.net

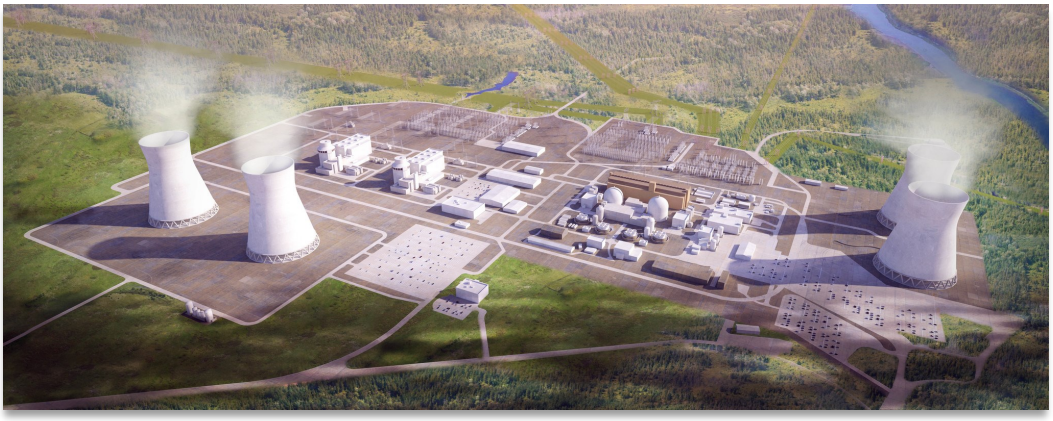
Location: Blackfoot, ID
Founded: 1996
Principal/CEO: Shelly Sayer
Major Customers: Westinghouse, Areva, Bechtel, NuScale, INL, PNNL, ORNL, SRNL, Others
Federal Engagement: DOE, GAIN, NRC, Other
Preferred Point of Contact: Derek Moss / dmoss@ptius.net / 208-851-0744

SOUTHERN NUCLEAR DEVELOPMENT, LLC

ADVANCED NUCLEAR | SUPPLIER

Southern Nuclear

Southern Nuclear Development, a subsidiary of Southern Nuclear Operating Company, pursues partnerships across the industry to drive the success of advanced nuclear technologies to be deployed as we move toward low- to no- carbon operations by 2050 — benefiting Southern Company customers for years to come. Southern Nuclear Development leverages decades of experience and research in nuclear operations, engineering, licensing and development to help advanced nuclear developers execute each phase of their strategy, from concept to commercial operation.



Location: Birmingham, AL
Founded: Non-disclosed
Principal/CEO: Stephen E. Kuczynski
Major Customers: Non-disclosed
Federal Engagement: DOE, NRC, EPA, FEMA
Preferred Point of Contact: Ben Carmichael / bmcarmic@southernco.com / 205-992-5944

www.southernnuclear.com

STRUCTURAL INTEGRITY ASSOCIATES, INC.

ADVANCED NUCLEAR | SUPPLIER

Structural Integrity Associates is a specialty engineering company serving the nuclear industry since 1989. Our talent and technology encompass monitoring & inspection capabilities, advanced analytical methods, and material assessment strategies to provide clients with expert asset integrity solutions and effective regulatory programs. Unique to our structural integrity capabilities are nuclear fuel engineer and structural analysis experts, and the most advanced fuel performance code in the nuclear industry.

Some of the services we provide include:

Engineering Analysis
- Perform stress, fracture mechanics, residual stress, dynamic/non-linear, computational fluid dynamics, and other advanced analyses using proprietary FEA tools and methods (ex. applied probabilistic fracture mechanics).
- Development of industry codes and standards including ASME, ASTM, ASNT, API, and others.
- Perform work under the auspices of documented and routinely audited Quality Assurance programs including NQA-1.

Materials Evaluations & Testing
- The latest field and laboratory testing technologies to identify causes of material degradation and damage.

Inspection & Monitoring
- Conduct Non-Destructive Examination (NDE) using state-of-the-art linear and annular phased array UT, TOFD, Guided Wave, and many other advanced NDE technologies
- Develop and implement tooling customized to applications when needed.
- Apply technicians certified in accordance with ASNT and other standards' requirements.

SI maintains offices throughout the U.S.

www.structint.com

Location: Charlotte, NC
Founded: 1989
Principal/CEO: Mark Marano (CEO) / Tony Robinson (CNO)
Major Customers: All major power generating utilities throughout North America. SI supports asset management programs for Nuclear, Fossil, and Renewable energy-producing power plants.
Federal Engagement: DOE
Preferred Point of Contact: Sean M. Fuller / sfuller@structint.com / 704-280-2564

STUDSVIK SCANDPOWER

Studsvik

Studsvik Scandpower provides nuclear simulation software and services which manage fuel from arrival on site to departure in casks. Key software products include CASMO/SIMULATE, GARDEL, S3K, S3R, MARLA, SNF, and CASKLOAD.

www.studsvik.com

Location: Global
Founded: Non-disclosed
Principal/CEO: Steve Freel
Major Customers: Non-disclosed
Federal Engagement: DOE, GAIN, ARPA-E, NRC, Other
Preferred Point of Contact: Art Wharton / art.wharton@studsvik.com

TAURUS teleSYS INC.

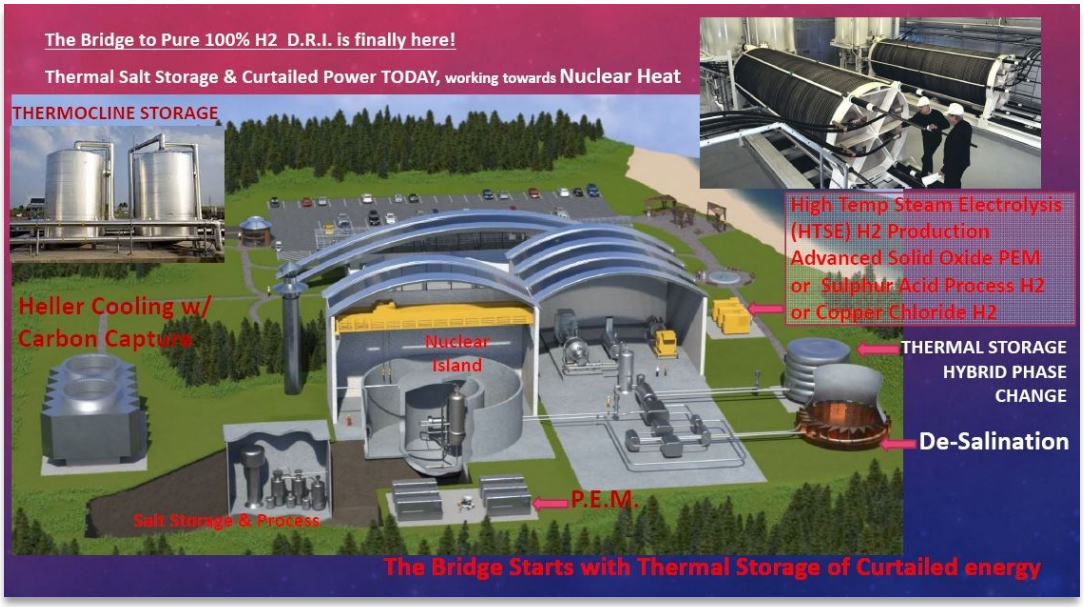
Taurus teleSYS, an Original Equipment Manufacturing (OEM) has implemented a Test Apparatus (TA) for hardware in the loop integrated testing and in emulation of a microgrid electrical transmission distribution and industrial data acquisition and control application.

Location: Newport News, VA
http://tgate.com
Founded: 1980
Principal/CEO: Arvind Patel
Major Customers: Newport News Shipbuilding, a HII subsidiary. Naval Nuclear Laboratory.
Federal Engagement: DOE, Other
Preferred Point of Contact: Arvind Patel / apatel@tgate.com / 757-873-2700

THORIUM ENERGY ALLIANCE

Thorium Energy Alliance
Thorium Will Power The World

Thorium Energy Alliance has been an international leader in promoting and advising on the use of Thorium in Fuels and Advanced Materials. TEA has helped set USA policy and has assisted public, private and university research efforts for over 15 years. TEA is a 501(c)3 Educational Advocacy organization

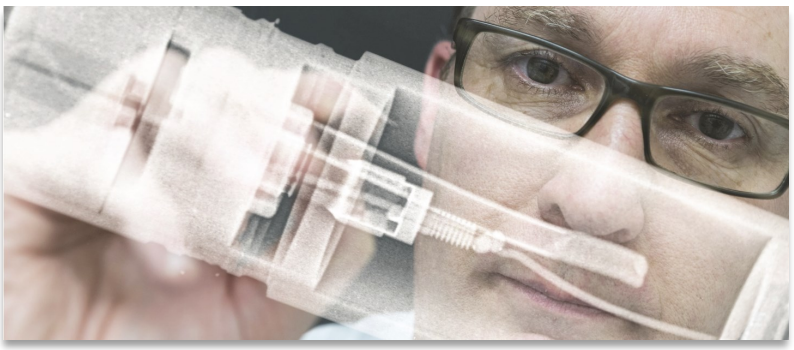


Location: Harvard, IL
https://thoriumalliance.com
Founded: 2006
Principal/CEO: John Kutsch
Major Customers: Clients and membership are confidential. If a company or organization wishes to engage us, we can sign an NDA and discuss your needs.
Federal Engagement: DOE
Preferred Point of Contact: John Kutsch / director@thoriumenergyalliance.com / 312-303-5019

ULTRA ELECTRONICS LIMITED

Ultra Electronics is a world-leading group of businesses operating in the Defense & Aerospace, Security & Cyber, Transport, and Energy markets. With over 60 years' experience, its Energy business offers a defense-in-depth approach to the nuclear industry focusing on systems requiring formal safety justification or qualification.

It has a core capability of high temperature neutron flux sensors and associated protection electronics from its long history supplying the UK's advanced gas cooled reactors. In North America it also provides nuclear qualified process sensors with over 80% of all reactors relying exclusively on its temperature devices for critical coolant monitoring.



Location: Worldwide
www.ultra-electronics.com
Founded: 1993
Principal/CEO: Nick Gaines (President, Ultra Electronics Energy)
Major Customers: Non-disclosed
Federal Engagement: DOE, NRC
Preferred Point of Contact: Adam Gaither / adam.gaither@ultra-nspi.com

ZACHRY NUCLEAR ENGINEERING, INC.

ADVANCED NUCLEAR | SUPPLIER

Zachry Nuclear provides trusted, best-in-class software tools, analysis, and engineering for design and safe operation of facilities worldwide, with a focus on innovative, effective solutions, customer relationships, and long-term value. Zachry Nuclear has been serving electric utilities, advanced reactor designers, research organizations, regulators, Architect/Engineers, fuel vendors and government energy agencies worldwide for over 45 years. Zachry Nuclear specializes in providing significant cost savings for our clients through margin recapture, operations flexibility, maintenance/outage task and schedule reduction and effective designs by determining the best solution using optimization, efficiency improvements, and advanced modeling and simulation methods. We are internationally recognized for our expertise in thermal-hydraulic analysis, radiological analysis, safety analysis, and code development.

Location: Stonington, CT
Founded: 1974
Principal/CEO: James R. Harrell
Major Customers: Electric Utilities, advanced reactor designers, research organizations, regulators, architect/engineers, fuel vendors, and government energy agencies
Federal Engagement: DOE, ARPA-E, NRC
Preferred Point of Contact: James R. Harrell / harrelljr@zachrynuclear.com
919-465-7230 ext. 227

www.numerical.com

NATIONAL LABORATORIES

ARGONNE NATIONAL LABORATORY

Argonne National Laboratory is a multidisciplinary science and engineering research center, where scientists and engineers work together to answer the biggest questions facing humanity, from how to obtain affordable clean energy to protecting ourselves and our environment. Argonne was born out of the University of Chicago's work on the Manhattan Project in the 1940s. Ever since that time, the Laboratory's goal has been to make an impact- from the atomic to the human to the global scale. Argonne pioneered the application of nuclear fission for energy generation and maintains leading-edge experimental and computational capabilities for developing innovative reactor and fuel cycle systems.

Location: Lemont, IL
Founded: 1946
Principal/CEO: Paul K. Kearns (Director)
Federal Engagement: DOE-SC, DOE-NE, NNSA, DOE-EERE, NRC, ARPA-E, DOD, DHS
Preferred Point of Contact: Hussein S. Khalil / hkhalil@anl.gov / 630-252-7266

www.anl.gov

BROOKHAVEN NATIONAL LABORATORY

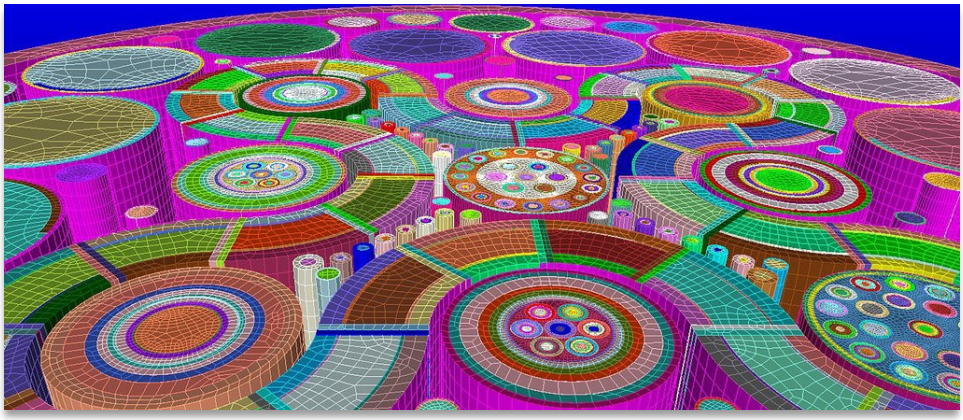
Brookhaven National Laboratory conducts research and development related to nuclear technologies (reactors and accelerator-driven systems), advanced materials for nuclear applications, proliferation resistance and physical protection, reliability and risk assessment, and advanced modeling techniques for reactor simulation and energy systems.

Location: Upton, NY
Founded: 1947
Principal/CEO: Doon Glbbs
Federal Engagement: DOE, GAIN, ARPA-E, NRC, Other
Preferred Point of Contact: Alejandro Sonzogni / sonzogni@bnl.gov

www.bnl.gov

IDAHO NATIONAL LABORATORY

Idaho National Laboratory (INL) is the nation's lead laboratory for nuclear energy research, development, demonstration and deployment. INL's nuclear energy researchers work with unparalleled irradiation and post-irradiation examination, fuel fabrication and materials testing facilities to develop new fuels to extend the life of the current fleet and fuels and materials for advanced nuclear reactor designs. INL leads many key initiatives for DOE's Office of Nuclear Energy, including Gateway for Accelerated Innovation in Nuclear (GAIN), the Light Water Reactor Sustainability (LWRS) program and Nuclear Science User Facility (NSUF).



Location: Idaho Falls, ID
Founded: 1949
Principal/CEO: John Wagner
Federal Engagement: DOE, GAIN, ARPA-E, NSUF, NEUP, NRC
Preferred Point of Contact: Jess Gehin / jess.gehin@inl.gov / 208-526-3486;

www.inl.gov

LAWRENCE BERKELEY NATIONAL LABORATORY

Lawrence Berkeley National Laboratory specialized in science and technology development for energy applications.

Location: Berkeley, CA
Founded: 1931
Principal/CEO: Michael Witherell
Federal Engagement: DOE, GAIN, ARPA-E, NRC, Other
Preferred Point of Contact: Peter Hosemann / peterh@berkeley.edu / 510-717-5752

www.lbl.gov

LAWRENCE LIVERMORE NATIONAL LABORATORY

Lawrence Livermore National Laboratory

For more than 60 years, the Lawrence Livermore National Laboratory (LLNL) has applied science and technology to make the world a safer place.

Livermore's defining responsibility is ensuring the safety, security and reliability of the nation's nuclear deterrent. Yet LLNL's mission is broader than stockpile stewardship, as dangers ranging from nuclear proliferation and terrorism to energy shortages and climate change threaten national security and global stability. The Laboratory's science and engineering are being applied to achieve breakthroughs for counterterrorism and nonproliferation, defense and intelligence, energy and environmental security.

Location: Livermore, CA
Founded: 1952
Principal/CEO: Bill Goldstein
Federal Engagement: DOE, NRC, ARPA-E, GAIN, NNSA, DHS, Other
Preferred Point of Contact: Kiel Holliday / holliday7@llnl.gov / 925-422-4074

www.llnl.gov

LOS ALAMOS NATIONAL LABORATORY

Los Alamos National Laboratory's mission is to solve national security challenges through scientific excellence. The Laboratory conducts fundamental nuclear materials research for future nuclear reactor designs and fuel cycle options, develops detection technologies needed for global nuclear materials management and supports nuclear energy initiatives through advanced modeling and simulation.

This work includes:

- Fundamental advances in nuclear fuels and cladding materials
- Nonproliferation safeguards
- Reactor concepts
- Reactor waste disposition

Location: Los Alamos, NM
Founded: 1943
Principal/CEO: Terry Wallace
Federal Engagement: DOE, GAIN, NRC, ARPA-E
Preferred Point of Contact: DV Rao / dvrao@lanl.gov / 505-667-5098

www.lanl.gov

OAK RIDGE NATIONAL LABORATORY

Oak Ridge National Laboratory (ORNL) is the U.S. Department of Energy's largest science and energy laboratory with signature strengths in computing, materials, neutron science, and nuclear science and technology. ORNL provides science and technology capabilities and services to extend the life of our existing light water reactor fleet, create and develop concepts for advanced reactor technologies, develop advanced nuclear fuels and fuel cycles, and support modernization of the U.S. nuclear regulatory infrastructure.

Location: Oak Ridge, TN
Founded: 1943
Principal/CEO: Thomas Zacharia
Federal Engagement: DOE, GAIN, ARPA-E, NRC, Other
Preferred Point of Contact: Kenneth Tobin / tobinkwjr@ornl.gov / 865-574-5267; Andrew Worrall / worralla@ornl.gov / 865-576-9369

www.ornl.gov

PACIFIC NORTHWEST NATIONAL LABORATORY

Pacific Northwest
NATIONAL LABORATORY

Pacific Northwest National Laboratory (PNNL) conducts research and development across the nuclear fuel cycle to support DOE and industry in development of advanced materials, advanced fuels and Gen IV reactors for the next generation of nuclear energy. Drawing on decades of expertise in nuclear science, engineering and regulation, along with its Category 2 Nuclear Facility assets, PNNL supports technology development across the TRL spectrum.

Location: Richland, WA
Founded: 1965
Principal/CEO: Steven Ashby
Federal Engagement: DOE, GAIN, NRC, ARPA-E, NNSA, DHS
Preferred Point of Contact: Mark Nutt / mark.nutt@pnnl.gov / 509-375-2984

nuclearenergy.pnnl.gov

SANDIA NATIONAL LABORATORIES

ADVANCED NUCLEAR | NATIONAL LABORATORY

Sandia National Laboratories

A Federally Funded Research and Development Center for the National Nuclear Security administration with a strong science, technology and engineering foundation enables Sandia's mission to develop advanced technologies to ensure global peace through a capable research staff working at the forefront of innovation, collaborative research with universities and companies and discretionary research projects with significant potential impact. Sandia National Laboratories' unique mission responsibilities in the nuclear weapons program create a foundation from which they leverage capabilities, enabling them to solve complex national security problems.

www.sandia.gov

Location: Albuquerque, NM
Founded: 1949
Principal/CEO: Steven Younger
Federal Engagement: DOE, GAIN, ARPA-E, NRC, Other
Preferred Point of Contact: Richard Griffith / rogrif@sandia.gov / 505-844-8232;
Patrick Mattie / pdmatti@sandia.gov / 505-284-4796

SAVANNAH RIVER NATIONAL LABORATORY

SRNL™
SAVANNAH RIVER NATIONAL LABORATORY
OPERATED BY SAVANNAH RIVER NUCLEAR SOLUTIONS

Savannah River National Laboratory (SRNL) has core competencies in nuclear materials management and advanced materials design, manufacture, characterization and testing. SRNL has many unique laboratory facilities enabling the safe study and handling of nuclear materials and nuclear fuel as well as ultra-sensitive measurement and analysis of radioactive materials.

Location: Aiken, SC
Founded: 1951
Principal/CEO: Vahid Majidi
Federal Engagement: DOE, GAIN, ARPA-E, NRC
Preferred Point of Contact: Thad Adams / thad.adams@srnl.doe.gov / 803-725-5510

srnl.doe.gov

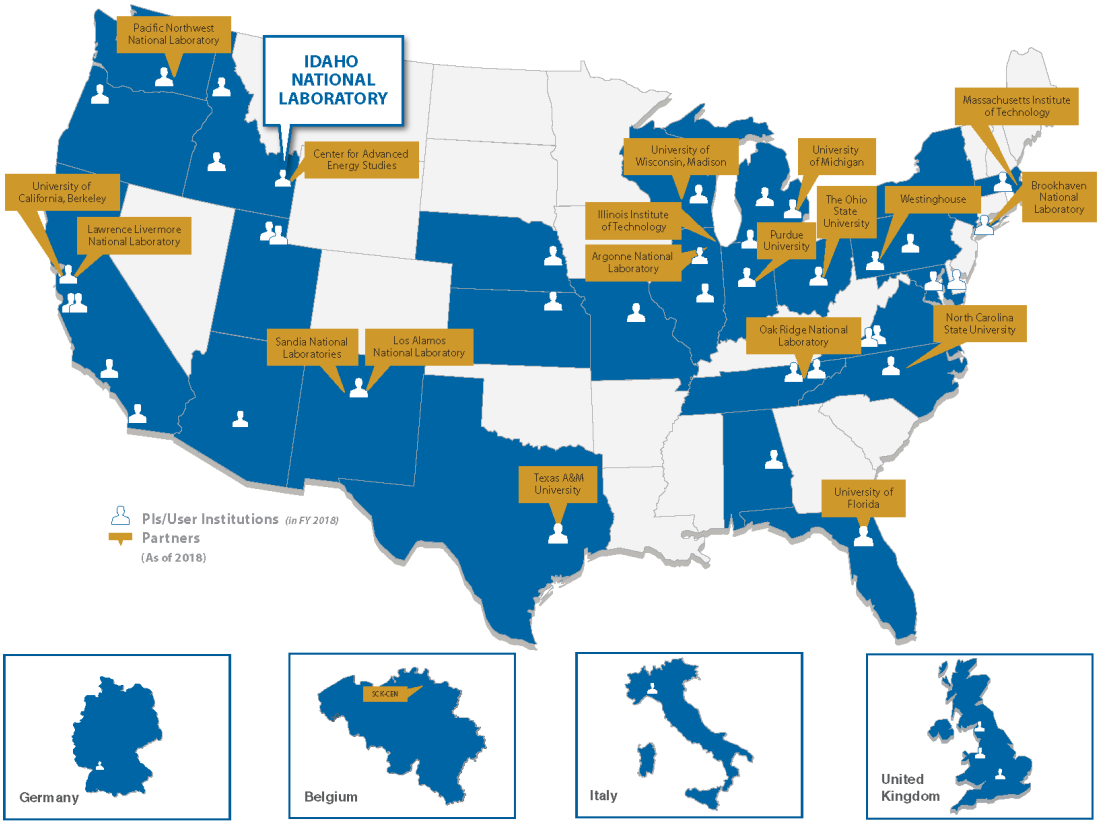
RESOURCES

NUCLEAR SCIENCE USER FACILITIES

NSUF Nuclear Science User Facilities

The Nuclear Science User Facilities (NSUF) offers unparalleled research opportunities for nuclear energy researchers. Users are provided access (at no cost to the researcher) to world-class nuclear research facilities, technical expertise from experienced scientists and engineers, and assistance with experiment design, assembly, safety analysis and examination.

Access to NSUF's 49 facilities at 21 partners institutions is awarded through two competitive peer-reviewed processes, Consolidated Innovative Nuclear Research (CINR) and the Rapid Turnaround Experiment (RTE). NSUF staff is available to help any researcher who desires to submit a proposal. Submitted proposals should be consistent with the DOE-NE mission and its programmatic interests. These include light water reactor sustainability, fuel cycle research and development, advanced modeling and simulation, and advanced reactor technology programs. All NSUF research must be non-proprietary and results are expected to be published.



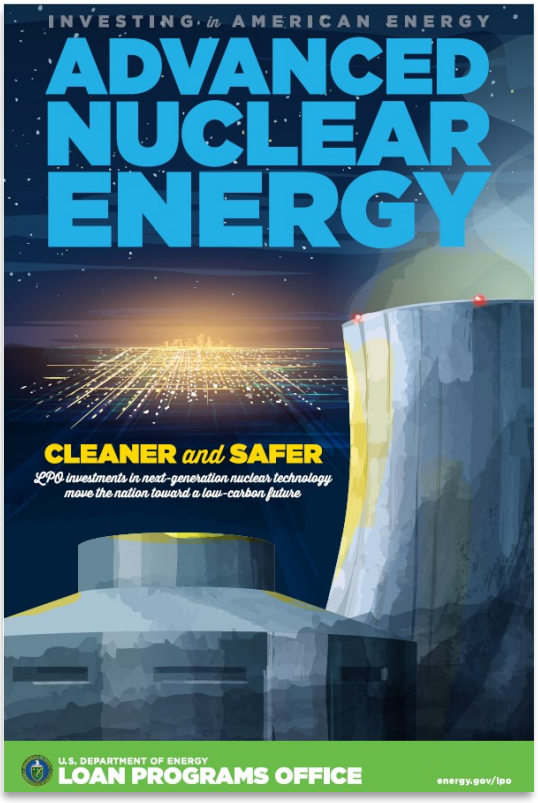
Location: Idaho Falls, ID **NSUF Director:** Rory Kennedy ***www.nsuf.inl.gov***

Preferred Point of Contact: Tiera Cate / tiera.cate@inl.gov / 208-403-8844

U.S. DEPARTMENT OF ENERGY LOAN PROGRAMS OFFICE

The Department of Energy's Loan Programs Office (LPO) finances large-scale, all-of-the-above energy infrastructure projects in the Unites States. LPO's in-house team has decades of financial technical, legal, and environmental experience and works closely with industry to bridge gaps in the commercial debt market when innovative technologies or unfamiliar borrowers may not be well understood by the private sector.

With more than $40 billion of loans and loan guarantees available, LPO can provide access to debt not typically available in the commercial sector. To date, LPO has approved more than $30 billion of loans and loan guarantees for more than 30 projects and has $12.5 billion of available loan guarantees under its Advanced Nuclear Energy Projects Solicitation. LPO has a proven track record that includes transforming existing energy infrastructure, reviving nuclear construction, accelerating growth of utility-scale solar and wind, expanding domestic manufacturing of electric vehicles, and improving the lives of all Americans by catalyzing new energy technology and creating jobs.



Location: Washington, DC

www.energy.gov/lpo

Preferred Point of Contact: lgprogram@hq.doe.gov / 202-586-8336

ACRONYM LIST

A&E	Architecture & Engineering
AISC	American Institute of Steel Construction
ANL	Argonne National Laboratory
ANSI	American National Standards Institute
APA	Accident Precursor Analysis
API	American Petroleum Institute
AR	Advanced Reactor
ARIS	Advanced Reactor Information System
ARPA-E	Advanced Research Projects Agency – Energy
ART	Advanced Reactor Technology
ASME	American Society of Mechanical Engineers
aSMR	Advanced Small Modular Reactor
ASNT	American Society of Nondestructive Testing
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BNL	Brookhaven National Laboratory
BWR	Boiling Water Reactor
CAD	Computer-Aided Design
CAE	Computer-Aided Engineering
CAM	Computer-Aided Manufacturing
CANDU	Canada Deuterium Uranium
CANM	Center for Advanced Nuclear Manufacturing
CCW	Component Cooling Water
CECR	Controlled Electron Capture Reaction
CFR	Code of Federal Regulations
CINR	Consolidated Innovative Nuclear Research
COLA	Construction and Operating License Application
CRM	Continuous Risk Management
CTD	Composite Test Device
DARPA	Defense Advanced Research Projects Agency
DHS	Department of Homeland Security
DOD	Department of Defense
DOE	Department of Energy
DOE-EERE	Department of Energy-Office of Energy Efficiency and Renewable Energy

ACRONYM LIST (Cont.)

DOE-NE	Department of Energy-Nuclear Energy
DOE-SC	Department of Energy-Office of Science
DOJ	Department of Justice
DOT	Department of Transportation
EBR-II	Experimental Breeder Reactor II
EDG	Emergency Diesel Generator
EM^2	Energy Multiplier Module
EPA	Environmental Protection Agency
EPC	Engineering, Procurement, and Construction
EPFC	Engineering, Procurement, Fabrication, Construction
EPRI	Electric Power Research Institute
ERM	Enterprise Risk Management
ESBWR	Economic Simplified Boiling Water Reactor
FATE	Flow, Aerosol, Thermal, and Explosion
FEA	Finite Element Analysis
FEMA	Federal Energy Management Agency
FHR	Fluoride Salt-Cooled High-Temperature Reactor
FMR	Fast Modular Reactor
FPGA	Field-Programmable Gate Array
FRs	Fast Reactors
GAIN	Gateway for Accelerated Innovation in Nuclear
GCR	Gas Cooled Reactor
GEN III	Generation III
GEN IV	Generation IV
GFR	Gas-Cooled Fast Reactor
GWe	Gigawatt Electric
GWhe	Gigawatt Hour Electric
HEI	Heat Exchange Institute
HELB	High Energy Line Break
HTGR	High-Temperature Gas Reactor
HTRs	High Temperature Reactors
I&C	Instrumentation and Control
IAEA	International Atomic Energy Agency
IES	Integrated Energy Storage

ACRONYM LIST (Cont.)

IMSR	Integral Molten Salt Reactor
INL	Idaho National Laboratory
IR	Infrared
ISO	International Organization for Standardization
kW	Kilowatt
LANL	Los Alamos National Laboratory
LBNL	Lawrence Berkeley National Laboratory
LENR	Low Energy Nuclear Reaction
LFR	Lead-Cooled Fast Reactor
LFTR	Liquid-Fluoride Thorium Reactor
LLNL	Lawrence Livermore National Laboratory
LMR	Liquid Metal-Cooled Reactor
LOCA	Loss of Coolant Accident
LPO	Loan Programs Office
LWRS	Light Water Reactor Sustainability
MSFR	Molten-Salt Fast Reactor
MSNB	Molten Salt Nuclear Battery
MSRE	Molten Salt Reactor Experiment
MSRs	Molten Salt Reactors
MWe	Megawatts Electric
MWt	Megawatts Thermal
MWth	Megawatts Thermal
NA / NPT / NA	ASME Nuclear Component Certificates
NASA	National Aeronautics and Space Administration
NASDA	NASA and National Space Development Agency
NDA	Non-Disclosure Agreement
NDE	Non-Destructive Examination
NEAMS	Nuclear Energy Advanced Modeling and Simulation
NEUP	Nuclear Energy University Program
NIAC	Nuclear Industry Assessment Corporation
NIH	National Institute of Health
NNL	Navel Nuclear Laboratory
NNSA	National Nuclear Security Administration
NQA	Nuclear Quality Assurance

ACRONYM LIST (Cont.)

NRC	Nuclear Regulatory Commission
NSSS	Nuclear Steam Supply System
NSUF	Nuclear Science User Facility
NUPIC	Nuclear Procurement Issues Committee
OEM	Original Equipment Manufacturer
ORNL	Oak Ridge National Laboratory
PARCS	Purdue Advanced Reactor Core Simulator
PAS	Portable Air Sampler
PNNL	Pacific Northwest National Laboratory
PRA	Probabilistic Risk Assessment
PRISM	Power Reactor Innovative Small Module
PWR	Pressurized Water Reactor
QAP	Quality Assurance Program
RADTRAD	RADionuclide Transport, Removal, and Dose
RELAP-5	Reactor Excursion and Leak Analysis Program
RHR	Residual Heat Removal
RIDM	Risk-Informed Decision Making
RTE	Rapid Turnaround Experiment
SBIR-STTR	Small Business Innovation Research-Small Business Technology Transfer
SC-HTGR	Steam Cycle High-Temperature Gas Reactor
SFR	Sodium-Cooled Fast Reactor
SiC	Silicon Carbide
SMR	Small Modular Reactor
SNL	Sandia National Laboratories
SRNL	Savannah River National Laboratory
STUK	Säteilyturvakeskus (Finland Radiation and Nuclear Safety Authority)
TA	Test Apparatus
TEMA	Tubular Exchanger Manufactures Association
TOFD	Time of Flight Diffraction
TRACE	TRAC/RELAP Advanced Computational Engine
TRIGA	Training, Research, Isotopes, General Atomics
TRISO	TRi-structural ISOtropic
TVA	Tennessee Valley Authority

ACRONYM LIST (Cont.)

UCLE	U.S. Nuclear Corp.
UNR/NTF	University of Nevada –Nevada Terawatt Facility
US	United States
USA	United States of America
USACE	United States Army Corps of Engineers
USNIC	United States Nuclear Infrastructure Council
UT	Ultrasonic Testing
xLPR	Extremely Low Probability of Rupture

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